

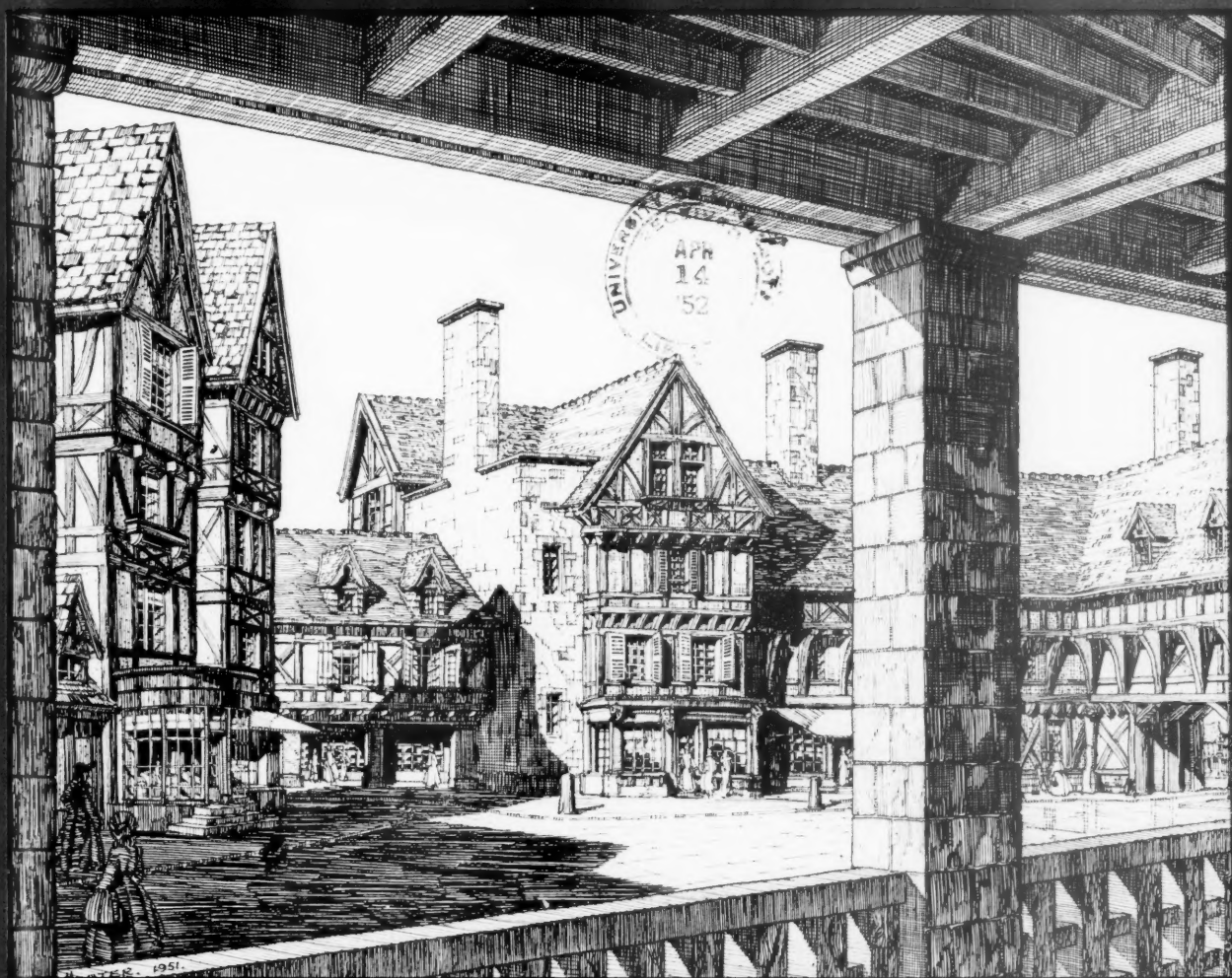
THIRD

VOL 59 NUMBER 5

MARCH 1952

THE JOURNAL OF THE ROYAL INSTITUTE OF BRITISH ARCHITECTS

66 PORTLAND PLACE LONDON W1 • TWO SHILLINGS AND SIXPENCE



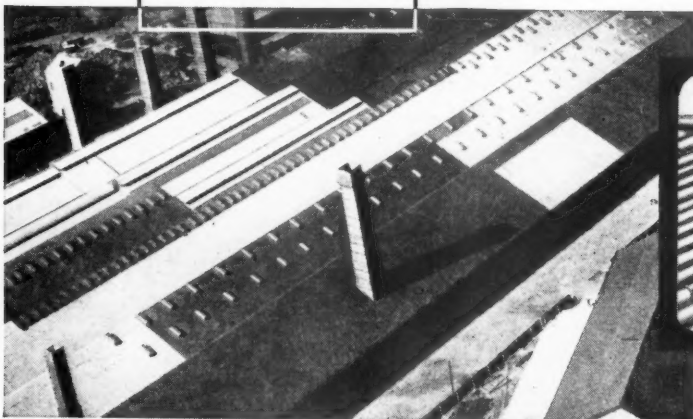
An imaginary competition of architecture in oak. From an ink drawing by E. S. P. Morris [2]

Aerial view of COLT S.R. Ventilators installed at the Cardiff works of Messrs. Hopkinson Electric Co. Ltd. Architect: Sir Percy Thomas, P.P.R.I.B.A., M.T.P.I. This is one of the 83 factories ventilated by COLT for the South Wales Factory Programme.

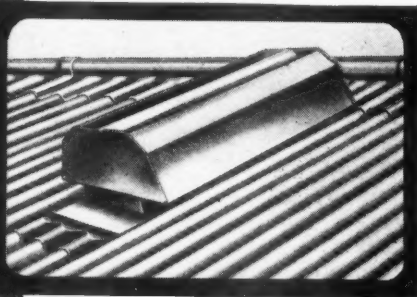


SEE COLT
ABOUT
VENTILATION
—WHATEVER
YOU DO

Put COLT in the picture...



General view of the factory of Messrs. Hale & Hale Ltd., Tipton, showing the installation of 187 COLT S.R. Ventilators in the roof.



THE COLT S.R. VENTILATOR, illustrated above, is designed on aerodynamic principles embodying aero-foil curves to assist the process of convection by harnessing the free power of the wind and roof eddies, no matter from which direction they come, creating a suction which can produce a power of extraction equal to that of mechanical means without the drawbacks of noise, wearing parts or operating and maintenance costs.

These aero-foil curves prevent the elements from interfering with the escape of the hot vitiated air which rises through the ventilator in accordance with the Laws of Convection.

They have been so designed as to give a flat curve of extraction to prevent extraction from becoming excessive with the high winds of winter.

Just one example of the many types of ventilation that COLT have planned or carried out for over 4,000 prominent firms throughout the country.

...from the start

Very many years' experience of all types of ventilation problems enables us to bring a supremely practical approach to the science of air induction and extraction. If you have any problems of this sort, or if you want any advice while you are at the drawing board stage, we shall be more than glad to assist you. Our experts are always enthusiastic to tackle new problems or advise on more familiar ones.

A FREE MANUAL with full specifications of the types of standard Colt Ventilators is available on request from Dept. V. 145.

COLT VENTILATION

INDUSTRIAL AND DOMESTIC

Colt Ventilation Ltd., Surbiton, Surrey, ELMbridge 6511-5
Also at Birmingham, Bradford, Bristol, Kilmarnock, Manchester, Newcastle, Newport (Mon.) and Sheffield.



THE JOURNAL OF THE ROYAL INSTITUTE OF BRITISH ARCHITECTS

THIRD SERIES VOL 59 NUMBER 5 : MARCH 1952 : 66 PORTLAND PLACE LONDON W1 : TWO SHILLINGS & SIXPENCE

153 EDITORIAL	176 RECONSTRUCTION OF THE FREE TRADE	187 CORRESPONDENCE
156 TWENTY YEARS AFTER—PROFESSOR SIR PATRICK ABERCROMBIE	HALL, MANCHESTER	188 NOTES AND NOTICES
162 THE ROYAL GOLD MEDALLIST 1952	180 THE AUDITORIUM OF THE FREE TRADE	189 NOTES FROM THE MINUTES OF THE COUNCIL
166 SPACE FRAMES AND STRESSED SKIN CONSTRUCTION—F. J. SAMUELY	HALL—H. BAGENAL	190 OBITUARIES
174 SELECTIONS FROM THE EXHIBITION OF CONTEMPORARY ITALIAN ARCHITECTURE	183 REVIEW OF CONSTRUCTION AND MATERIALS	190 MEMBERSHIP LISTS
	184 PRACTICE NOTES	192 MEMBERS' COLUMN
	185 BOOK REVIEWS	

The Royal Gold Medal

Information has been received from the Keeper of the Privy Purse that Her Majesty Queen Elizabeth will be graciously pleased to continue the grant of a Gold Medal for Architecture each year, for award to distinguished Architects and Architectural Writers under the rules which have been in force in His Late Majesty's reign.

The Roscoe Chair of Architecture

Mr. R. J. Gardner-Medwin, B.Arch., Dip.C.D. (L'pool), M.T.P.I. [F] has been appointed to succeed Professor L. B. Budden as Roscoe Professor of Architecture in the University of Liverpool. He is 44 years of age and received his architectural education at the Liverpool School of Architecture, of which he is to be the head. He has had a distinguished career which includes being a finalist in the Rome, holding a Commonwealth Fellowship at Harvard University, winning a competition for a satellite town, teaching architecture at the A.A. and Regent Street Polytechnic, serving in the Royal Engineers during the war, advising on town planning and housing in the West Indies and, since 1947, filling the position of Chief Architect and Planning Officer to the Department of Health for Scotland. The many Liverpool School graduates will wish him every success in following Reilly and Budden.

Housing Conference

The Housing Centre are to hold a conference entitled *Housing: at the Right Rents* from 26 to 28 May inclusive in the Conference Hall at County Hall, London. After an opening address by the Minister of Housing and Local Government, Mr. J. H. Forshaw [F], Chief Architect to the Ministry, will speak on *The Architecture of Housing Estates*. The chair will be taken by Professor Sir Patrick Abercrombie [F], President of the Housing Centre. On the second day, Mr. Ian Murray Leslie [Hon. A], Editor of *THE BUILDER*, will speak on *Are Post-War Housing Standards too High?* and Dr. Marian Bowley on *Should Rents and State Assistance be adjusted to Family Income?* On the third morning Mr. Henry Wells, Chairman of the Hemel Hempstead New Town Corporation, will speak on *The Role of Private Enterprise and other Housing Agencies*. There will be tours of housing estates, a visit to a new town and receptions at County Hall. The conference fee is £1 1s. to members of the Housing Centre and £2 2s. to others, plus extra charges for the visits. Enrolment forms can be obtained from the Secretary, The Housing Centre Trust, 13 Suffolk Street, Haymarket, S.W.1.

The British Architects' Conference at Edinburgh

Inserted in this issue will be found the programme of the 1952 Conference. It is not since the year 1923 that the British architects have met together in the famous and noble capital of Scotland. Few cities outside London—a Scot would doubtless say 'no city'—have so superb a display of architectural wealth, whether in the medieval city which flanks the Royal Mile from Holyrood Palace up to Sir Robert Lorimer's memorial on the summit of the castle rock, or in the New Town with its squares and austere stone façades. Also the post-war housing and the more recent commercial buildings are of interest in these workaday times.

The Conference will be mainly concerned with housing. Mr. J. Steel Maitland [F] is to read a paper on *Scottish Housing, Past and Present*, and Mr. J. L. Womersley [A], Borough Architect and Town Planning Officer of Northampton and the winner (with Mr. G. Hopkinson [A]) of the recent low-cost housing competition organised by *THE BUILDER*, is to lecture on *The Architect's Contribution to Housing in 1952*. These two papers should cover adequately the outstanding building problem of Britain today.

On the lighter side, the neighbourhood of Edinburgh has much to show the architectural visitor and an excellent programme of tours has been arranged by the Conference Committee of the Royal Incorporation of Architects in Scotland who, of course, are the Conference hosts. A special exhibition illustrating current thought in Scottish architecture will be on view at the Assembly Rooms.

It is a happy event that a Conference in Edinburgh should coincide with the occupation of the Presidency by a Scottish architect.

The Library Group

On Monday 7 April at 6 p.m. Mr. John Brandon-Jones [A] is to give the Group a talk on W. R. Lethaby (1857-1931).

The meeting on 11 February, when the work of George Edmund Street (1824-81) was introduced by Mr. H. S. Goodhart-Rendel, Past President, was very well attended, the 50 present being almost too many for the Aston Webb Room. Mr. Goodhart-Rendel threw new light on Street's importance in 19th century architecture and spoke of his almost supernatural incarnation as an artist-architect to his contemporaries. The drawings displayed were mostly of Street's ecclesiastical works, including Carlisle and Edinburgh Cathedrals, the Guards' Chapel and his churches at Kennington, London, and Middlesbrough.

The Planning of London. Exhibition at County Hall

A 20-year planning programme for London is the subject of an exhibition now on view at County Hall. This follows naturally from the plans by Sir Patrick Abercrombie and Mr. J. H. Forshaw for the Greater London area and by Dr. C. H. Holden and Professor W. G. Holford for the City of London. All the bodies which had to be consulted, 630 of them, have now been consulted, an enormously complex survey has been completed and the planners have now got down to practical proposals in terms of immediate objectives, time and money.

The Council propose to spend £540 million (at present prices) during the next 20 years in providing the following: accommodation for 580,000 persons within the county; 1,070 acres of new open space; new schools and extensions to existing ones covering 1,238 acres in all; on new road works, six fly-over intersections, 37 roundabouts, 11 miles of principal roads, 7 miles of widening, 2 miles of tunnel and the rebuilding of two Thames bridges; for hospitals, extensions involving 108 acres; comprehensive development areas covering 2,288 acres. These proposals are shown in the second half of the exhibition, the first being an illustration of the survey. The magnitude of the survey is revealed by the fact that, in covering the 117 square miles of the county area, the surveyors had to walk 4,600 miles along 17,000 streets.

The exhibition is very well mounted, on the lines of the Council's earlier exhibition about the South Bank and doubtless using the same equipment. The presentation, however, is technical and rather heavy-going, even for those accustomed to planning exhibitions. This is a pity in view of the avowed purpose of the exhibition, which is to inform the ordinary Londoner about what is to be done to his city.

The exhibition is open free until 28 March (Monday to Friday 10 a.m. to 8 p.m., Saturday 10 a.m. to 6 p.m.).

Swedish Architecture Exhibition

The first exhibition (which closes on 29 March) to be held in the new home of the Building Centre is on a subject which is familiar to British architects, namely Modern Swedish Architecture. Apart from the fact that Sweden has latterly been a place of pilgrimage for British architects, most of the buildings shown (and very well shown in simple panels) have been illustrated in our architectural periodicals. Nevertheless, for those who have not yet studied a foreign contemporary architecture which has a close affinity with our own, this exhibition is well worth a visit. The political and social life of Sweden and Britain resemble one another very closely. They have the same preoccupation as we have with such matters as high costs and housing together with the provision of schools, factories, hospitals and similar buildings. To those who remember the last exhibition on Swedish architecture—at the R.I.B.A. in 1924—the change in outlook is very marked. The arts and crafts movement, as typified in Stockholm Town Hall, and archaic classic revivalism, shown in Tengbom's Stockholm concert hall, have disappeared completely. Asplund turned the current of Swedish architecture into the entirely new channel of a sane modernism which shows a preoccupation with structure, form and function and, it must be confessed, with standardisation. The results are pleasant and useful, rather than sensational, which perhaps is as well in an architecture for the people.

The exhibition was opened by H.E. The Swedish Ambassador; Professor Paul Hedqvist (Hon. Corr. Member), President of the S.A.R. (the Swedish Society of Architects) was present.

Debate on Building for Limited Life

The Architecture Club are to hold a supper at the Chez Auguste restaurant, 47 Frith Street, Soho, at 7 p.m. for 7.30 on Wednesday 2 April at which Mr. R. Furneaux Jordan [F] and Professor A. E. Richardson, R.A. [F] will debate the proposition 'that no building should now be designed to last more than a lifetime'.

The Leonardo Quincentenary Exhibition

The idea of celebrating by an exhibition the quincentenary of that fertile genius Leonardo da Vinci was first proposed by the Science Museum, and the Royal Academy have housed it in their newly-repaired Diploma Gallery. It happens that many of his drawings and notebooks are in this country, notably the magnificent Windsor collection of drawings belonging to H.M. the Queen and the Leicester Codex which has been lent by the Earl of Leicester. The exhibition illustrates Leonardo as painter, sculptor, architect, military engineer, anatomist, cartographer, canal builder and student of aeronautics, but above all as an acute observer. It is perhaps the man himself with his enquiring mind, his appreciation of form and movement and his ingenuity which emerges most from this exhibition, especially if the analytical essays and notes in the excellent catalogue are studied. His left-handedness and his habit of writing from right to left in a beautiful reversed 'mirror' script are added facets of his personality.

For architects the exhibition holds many things of special interest such as his drawings in ink, wash and chalk, his sketch for a town on two levels, his section of a building and a street with the note 'Let the [street] be as wide as the universal height of the houses', his machine for measuring the tensile strength of wire, his machine for sawing stone, his designs for cranes and his design for a triangulated girder bridge—the earliest known illustration of this type of construction—which has a remarkable resemblance to the Bailey Bridge of today. And for those interested in the technique of warfare there is an armoured fighting vehicle, mortars and multi-barrelled guns. Finally, among the models made by the Science Museum from his drawings there is a clockwork-operated helicopter which is actually capable of flight.

Among the lectures to be given in connection with the exhibition is one by Dr. Nikolaus Pevsner [Hon. A] on *Leonardo and the Architecture of the Renaissance*. It will be given at the Royal Academy on Thursday 22 May at 7 p.m., admission 2s. 6d.

Architect Appointed High Sheriff

Lieut.-Col. Ernest Gee, R.E., T.D. [F] has been appointed High Sheriff of Anglesey.

The International Union of Architects

The I.U.A. are anxious to increase the circulation of their Bulletin, of which Nos. 54 and 55 have recently been published. The Bulletin is published, in the French language, by Architetti, Via S. Spirito 1, Florence, at a subscription of 1,000 lire per annum for 10 issues (approximately 12s.). No. 55 contains a full account of proceedings at the Assembly and Congress held recently in Morocco, of which a summary by the Hon. Godfrey Samuel [F] was published in the November 1951 JOURNAL. No. 54 contains, among other matters, short reports on various Working Committees and the text of the Standing Orders for the I.U.A.

First Prize for Oil Paintings

Mr. John A. Videan [L] was awarded first prize for his exhibit of four oil paintings in the recent City of London Art Exhibition at Guildhall. Mr. Videan is a regular exhibitor in various well known London art exhibitions.

Easter Holiday

The offices of the R.I.B.A. will be closed at 12.30 p.m. on Thursday 10 April and will re-open at 9.30 a.m. on Wednesday 16 April.

R.I.B.A. Diary

MONDAY 24 MARCH TO 30 APRIL. Exhibition of Modern Italian Architecture. Monday to Friday, 10 a.m.—7 p.m. Saturday, 10 a.m.—5 p.m.

MONDAY 7 APRIL. 6 P.M. Library Group. W. R. Lethaby. Introduced by Mr. John Brandon-Jones [A].

TUESDAY 22 APRIL. 6 P.M. *British Standards and the Architect*. E. D. Mills [F], P. Cutbush [A], G. Weston, B.Sc.

THE DEATH OF HIS MAJESTY KING GEORGE THE SIXTH

At the opening of the General Meeting on Tuesday 4 March the President asked all those present to stand for a few moments as a tribute to the memory of the late King. He said:

'We mourn the passing of our beloved King, who was our Patron and took the keenest interest in the welfare and work of our profession. He succeeded to the throne under circumstances of great difficulty and the years during which he reigned over us have been far from easy, but by his splendid example and devotion to duty he has left the ties between the Crown and the Royal Family and the peoples of the Commonwealth stronger than ever before. We all feel a sense of personal loss and his memory will remain for ever in the hearts of his people'.

The Hon. Secretary then read aloud the Loyal Address which is being presented to Her Majesty Queen Elizabeth II. This is as follows:

'To Her Most Excellent Majesty Elizabeth the Second, by the Grace of God, Queen of this Realm and of all Her other Realms and Territories, Head of the Commonwealth, Defender of the Faith.

'May it please your Majesty:

'We, Your dutiful subjects the President and Council, on behalf of the Members of the Royal Institute of British Architects, and of the Societies both in the United Kingdom and in the Commonwealth and Colonies beyond the Seas in alliance therewith, beg leave loyally and respectfully to approach Your Majesty, and to offer our deep and heartfelt Sympathy, in the loss which Your Majesty, the Members of the Royal Family, and the Nation have sustained by the Death of Your Royal Father, our late Most Gracious Sovereign King George VI. His revered Majesty encouraged with his Royal and generous Patronage the Art that is so dear to us, and we mourn with deepest sorrow, not only our beloved Ruler, but also the gracious and beneficent Patron of the Royal Institute. We most respectfully and dutifully tender to Your Majesty our sincere devotion and loyalty on your accession to the Throne, and earnestly pray that the Almighty will grant Your Majesty a long, happy and glorious Reign during which the Nation may prosper, the Arts flourish, and Your Peoples enjoy all the blessings of Peace.'

(Signed) A. GRAHAM HENDERSON President

JOHN L. DENMAN

R. E. ENTHOVEN

NORVAL R. PAXTON

MARTIN S. BRIGGS

A. LEONARD ROBERTS

C. D. SPRAGG

Vice Presidents*

Hon. Secretary

Hon. Treasurer

Secretary

The Address is being engraved on vellum for presentation to Her Majesty.

The President's Telegram to H.M. Queen Elizabeth and her reply

The following telegram was sent by the President to Her Majesty Queen Elizabeth on 6 February:

'The Council and members of the Royal Institute of British Architects tender to your Majesty their heartfelt sympathy in the loss sustained by the death of our Royal Patron.—GRAHAM HENDERSON, President'.

The following telegram was received from Buckingham Palace in reply:

'Graham Henderson, President Royal Institute of British Architects, 66 Portland Place, W.1:

'Her Majesty has deeply appreciated your telegram of sympathy.—PRIVATE SECRETARY.'

* Professor W. G. Holford is unable to sign the Address as he will be in America at the relevant date.



Messages of Condolence Received at the R.I.B.A.

Letter to the President from the SOCIÉTÉ CENTRALE D'ARCHITECTURE DE BELGIQUE:

La Société Centrale d'Architecture de Belgique, douloureusement émue par l'annonce du décès de Sa Majesté George VI, a l'honneur de présenter à ses Confrères du Royal Institute of British Architects ses bien sincères condoléances et le témoignage de sa profonde sympathie.—*Le Président de la Société Centrale d'Architecture de Belgique*, PIERRE-M. PORTO.

Telegram to Sir Patrick Abercrombie, Vice-President F.B.U.A., from the FRANCO-BRITISH UNION OF ARCHITECTS:

Distressed at the death of His Majesty, we beg you to convey to our British confrères the sincere sympathy of the French section, F.B.U.A.—*President*, MAIGROT.

Letter to the President from the UNION INTERNATIONALE DES ARCHITECTES:

Le Secrétaire Général de l'U.I.A. et l'Union toute entière, très touchés du deuil cruel éprouvé par la Grande-Bretagne en la perte de son Grand Roi Georges VI, adressent au R.I.B.A. leurs condoléances les plus vives, et l'expression de leur sympathie.—*PIERRE VAGO, Secrétaire Général*.

Extract from a letter to the R.I.B.A. from the BRONX CHAPTER, THE AMERICAN INSTITUTE OF ARCHITECTS:

... I should like to take this opportunity to express the condolences of the Bronx Architects on the passing of your beloved King George VI. He will long be remembered and respected for the example which he set in his private and public life. His death has caused sadness in the hearts of all our people. Sincerely yours, GEORGE J. RUSCIANO, *Secretary*.

Letter to the President from SENOR J. V. RIVAROLA, Buenos Aires, Argentina, Hon. Corresponding Member R.I.B.A.:

I beg you please to accept my sincere sorrow for the death of His Majesty King George VI.—*J. V. RIVAROLA*.

Extract from a letter to the Secretary, dated 18 February, from the LIVERPOOL ARCHITECTURAL SOCIETY:

At a recent meeting of the Council of this Society the death of his Most Gracious Majesty, King George VI, was referred to, and we were instructed to convey to you on behalf of the Society its deep sense of loss on the death of our late Sovereign.—*HODGSON, MORRIS AND CO., Secretaries*.

Twenty Years After

By Professor Sir Patrick Abercrombie,

M.A.(L'pool), Hon.D.Lit., F.S.A., M.T.P.I. [F]

Read before the R.I.B.A. 4 March 1952

The President in the Chair

FIRST I SHOULD like to tender my very humble apologies to the Royal Institute for not having written this paper in time for it to be printed and circulated. My excuses are two illnesses on my part, a rare occurrence with me; two voyages, a usual occurrence; and a Parliamentary Bill on which I am in opposition—and one never knows with a Parliamentary Bill when it will come up. However, I can assure you that this paper was prepared in my mind long ago, and it was only a question of the time it takes to write down a paper in longhand.

My title may seem slightly ambiguous. Twenty years after what? After today? That might seem to be a very suitable subject, considering the appearance from day to day of development plans. Will all they show today have been realised in 20 years? It would be a fascinating subject for a discussion or talk, but I leave it to some younger man to peer into the future—a future which he will live to see and about which he can complain if he finds that the 20-year limit has cramped his manoeuvres.

My title is based upon the immortal trilogy, *The Three Musketeers*. It was, I must confess, chosen before the publication in England of Mr. Rasmussen's book; you will remember that he has a charming chapter on the Paris of the three musketeers. I am transposing the periods. I am taking the less exciting life of the 20th century with its architecture and planning in place of the swashbuckling and intrigue of the 17th century.

This is how my fifty odd years of British planning works out. The first period is the period to the end of the First World War—the Three Musketeers' period, the period to 1918. The second period is roughly between the wars—1918 to 1938—Twenty Years After. The third period is 1938 to date—the Vicomte de Bragelonne, still unfinished. In fact, I do not think that I ever did finish that book!

Whom shall we suggest as the Three Musketeers of planning in this country? I put forward the following three names—Geddes, Ebenezer Howard and Raymond Unwin. And d'Artagnan? Whom shall we say was the d'Artagnan of the planning? I can think of no one better than George Pepler. I ask the question, 'Did he come up, as Rasmussen suggests, penniless to the capital from Gascony, or did he emerge sedately from a Quaker school in York?' At any rate, he is here with us tonight. So it is that I am taking those middle years for a retrospect.

I do not think any apology is necessary from an elder architect for looking back

over these 20 years. How quickly are things forgotten!—not only the faults and the difficulties, but even the achievements. It may seem surprising to say so, but there were achievements during these 20 years between the wars. But most important, there were forecasts of present ideas and practice.

Let me for one brief moment take one glimpse at the first period—not the one with which I am dealing tonight. Let me remind you of three historic features. I think the three most important events of those early far-off days before the first world war are these. First of all, there was the founding of Letchworth in 1903. It was the first new town in the modern sense—a British event, but of international influence and importance. Secondly, there was the first of the English Town Planning Acts, the Act of 1909, which was known as the Housing and Town Planning Act, a title that seems very familiar to us today, with its emphasis on housing. That was a purely national and domestic concern, because we were behindhand in legislation as compared with other countries. Thirdly, there was the great Conference of 1910, a Conference of the Royal Institute of British Architects. That was an international event of absolutely first-rate importance. It was a great gesture on the part of the architects. There was the lasting value of the report, and there was the magnificent exhibition at the Royal Academy. That report is a mine and quarry of ideas and historic information to which I frequently turn today. You will remember that we transferred the exhibition to Ghent three years later. Then it went to India but was sunk on the way by the *Emden* and was eventually replaced owing to the devoted labours of many people, principally, we might say, of Harry Lancaster. There were these three great features in that period—a Conference, an Act, and the founding of a city.

I hope that Sir George Pepler will not think I have forgotten another event that took place soon afterwards—the founding of the Town Planning Institute. And now to return to my 20 years.

I want to hurry very quickly over the legal side of these 20 years. I do not think anyone but lawyers like to hear or talk about law. But these three periods drape themselves around three major Acts. There is a great deal of amending and consolidating and *ad hoc* emergency legislation, but there are three major Acts. The first I have already mentioned—the 1909 Housing and Town Planning Act. John Burns was responsible for it. There was the 1932 Act, preceded by two minor consolidating Acts.

There was the 1947 Act, the present one.

It is interesting to note that the first Act contained 13 pages of sections and 4 pages of appendices, 17 pages in all. The second Act contained 69 pages of sections and 25 pages of appendices, 94 pages in all. The third Act contained 140 pages of sections and 66 pages of appendices or schedules, 206 pages in all; and there are orders and regulations which run to 280 pages, or 486 pages in all, which every practising town planner is supposed to know by heart. They are very closely reasoned pages, too.

The 1932 Act came late in the period. I do not want to spend a lot of time in taking you through its 94 pages. It would be interesting to do so, but I do not intend to do it. What I want to talk about is what the Act could not do rather than what it could do. The first thing the 1932 Act could not do was to plan the town. That is quite evident. A beginning had been made with the London Plan, but there were no proposals whatever on that. I will look at one or two reasons for this lack of planning later on.

Secondly, the Act was very inefficient with regard to the planning of the country. Several subterfuges had to be adopted in order to bring the country within the purview of the Act. You had to imagine a very low density—one house per hundred acres, and so on. My friend George Pepler was fertile in inventing rural zones which just came within the scope of the Act and trying to avoid the claim for compensation.

There were, however, very considerable powers for detailed planning of suburbs. It was really still an Act for developing suburbs, but there was nothing whatever for determining where they should come in in any broad scheme of planning. It did prevent a number of unfortunate types of development which had also been prevented to a large extent by the 1909 Act.

What were the real causes of the ineffectiveness of the 1932 Act? I think that the first was the fear of compensation. A number of people were financially interested in areas for housing and industry, and there might have been big claims for compensation. Secondly, no interest was taken at that stage in agriculture. It was not even a question of 'Hands off Agriculture!' Next, everything had in practice to be tied up in a rigid statutory scheme which once passed, had almost the importance and firmness of an Act of Parliament. There was a general absence of direction with regard to regional and national population grouping. Finally, there was no proper machinery for programming. Every part of a scheme appeared on plan to take place simultaneously, in spite of Section 16.

These accusations are far too sweeping, but they give some idea of the discontents we felt at that time, and you will find these discontents very well summarised in the Barlow Royal Commission Report, particularly in some of the minority reports.

These were bare statutory Schemes and negative control, but they were supplemented by a number of plans and proposals of a very much wider vision. There were a number of advisory regional Reports

in preparation during this period. I have often wondered whether they were ever challenged as to whether they came within the four corners of the powers of the Act. Sir George will tell us if I am foolish in even making that innuendo! However, joint committees were set up for regional planning and grouping, and reports were prepared.

The biggest regional advisory committee was, I think, that of Manchester. I may be wrong, but it was immense in any case. It covered 28 local authorities, including parts of South Lancashire and North Cheshire, and I believe Derbyshire, as well as a fragment of Yorkshire. It was divided into a number of joint executive boards for statutory schemes.

London also had a regional committee. Its powers were uncertain but it held together and did excellent work entirely owing to the personality of its executive officer, Raymond Unwin. When he retired from it and a capable but less powerful personality took charge, the London Committee practically ceased to function. The London County Council gave it the *coup de grâce* by withdrawing its subvention, and it came to an end. I think it was a mistake on the part of the London County Council.

Although I am not talking about the 1947 Act, in my opinion it is retrograde as compared with the 1932 Act with its regional committees. I think I am right in saying that there are no regional planning committees at work today except in the counties without county boroughs. It is a pity, because the counties, although I have great respect for them and like to see a Lord Lieutenant in his full panoply, are somewhat antiquated as units for planning purposes. As you know, they were in their present form at the time of the Domesday Survey, and they were excellent for that purpose—the finest survey ever carried out. I do not think that they are quite so good at present as units for planning.

The grouping of local or planning authorities is not enough. I have hinted that these groups of local authorities prepared advisory reports, and you will find a large number of them in the R.I.B.A. Library. They made a definite contribution towards planning. I should like to congratulate Sir George Pepler on the work for which he was responsible in getting these reports prepared and published. They are almost entirely regional. The very earliest ones that appeared in 1922 were fortunate in securing the approval of Lewis Mumford. He writes: 'The difference between this kind of regional plan and the city plans which we know so well in America is the difference between Cissy Jupe who understood a horse as a living animal and Bitzer who knew it simply as a granivorous quadruped'.

I should like to mention the names of some of the authors of these reports, because many of them are well known members of this Institute. There was my old colleague, Stanley Adshead. There is Davidge, happily with us still. There is Lanchester, whose most fertile work was done with Geddes in India on exactly the

same lines. There are Mawson, Adams, Thompson and Max Fry. I had a hand in some of them myself. They are perhaps stronger in survey than in proposals, because we had always at the back of our minds that we were preparing reports to be carried out under existing powers. We were not given the scope that was granted at the beginning of the third period, when reconstruction was in mind, and the technicians were told to plan without regard to legislation. The positive proposals are for this reason not always up to the surveys. The survey side was very thorough indeed, though in spite of Sir George Pepler's continual attempts none of us would knuckle under to a common form of notation. Everybody prepared his report in his own notation, which made things very much more difficult. However, the reports were printed and published, and they had a very considerable effect on the public. In spite of what I have said about their limitations in regard to planning, they were to a great extent up to date in their broad suggestions, particularly with regard to satellite development. It would be worth some of our whiles to examine some of these reports.

There was a gap between these reports and the statutory schemes—a very serious gap: to quote from the Barlow report; 'wide divergence between recommendations of Advisory Regional Reports, adopted and endorsed by Groups of Local Authorities, and Statutory Schemes which have eventually emerged.' That was because of the fear of compensation.

Raymond Unwin put forward a very interesting suggestion about which I should like to say a word, though I do not want to spend too much time on it. He suggested the preparation of what is called a Preliminary Statement. This was intended to give the public an idea of what the planning scheme would contain. A kind of threefold stage was envisaged: an advisory plan on the basis of these reports, a Preliminary Statement extracted from it and given the approval of the planning authority, and finally the statutory scheme. Unfortunately—largely, I think, owing to the legal members of the Ministry, who insisted on examining the preliminary statement with a microscope—though it was drawn in small scale they insisted that widening of roads had to be shown exactly on one side or the other—this suggestion was not carried out. The idea of having a preliminary statement was a good one. We all know its advantages. A legal friend of mine in Dublin once said to me, 'Why ever have a plan?' I was rather interested to read in a book which has just been published that: 'The main principle behind the Town and Country Planning Act 1947 does not in strict logic involve preparing a plan at all.'*

Unwin was conscious that there was a danger of interim planning going on for years and years without anything being done on it at all. It was on the basis of that principle that when the London County Plan was drawn up we looked into the

bottom drawer to see what was there, and we found absolutely nothing. It was based on nothing at all. In other words, it was an improvisation. I do not myself like interim planning on an empty bottom drawer.

Those are the main features, one might say, of the legal side of this period. Under what technical auspices did these 20 years of active planning and building start? I will just give you three or four.

First, there was the Geddes Survey and Exhibition and his teaching of the Triad—the home, place and work. There was then the Housing and Town Planning Act 1909, and there were the advisory reports I have already mentioned. Next there was Ebenezer Howard with his ideas on grouping as interpreted in actuality by Parker and Unwin at Letchworth and as a general concept. At the end of the war my friend Osborn, whom I hoped would be here tonight, carried out with great good humour a tearing campaign for building a hundred new towns. He thought as the result of a tour in the north of England that he had got people to agree. It is interesting that another campaign was being carried out almost simultaneously by Trystan Edwards for quite another sort of new town. Osborn came back—he relates this in his book—thinking he had converted the country and found that that incorrigible old realist, Ebenezer Howard, had bought a site for a second new town. It was a complete blow to him to have one instead of a hundred possible ones! But Ebenezer Howard said that one in reality was worth a hundred in the brain of Mr. Osborn. The amazing thing about that episode was that here was this old man who had not a penny in his pocket and who bought four square miles in Hertfordshire although he could not even pay the deposit, and got the estate agent who had been bidding for him to find the money out of his own purse. George Bernard Shaw remarks of him: '... an amazing man whom the Stock Exchange would have dismissed as a negligible crank.' But he bought well, and he got his town built.

Then there was an almost forgotten report which is of great importance—the Tudor Walters report. Again, Unwin was behind it. It set out a number of detailed standards of layout, density and house design which had an enormous effect. Its effect was not always for the best, but it had a great effect. Finally, a number of admirable and charming smaller schemes, such as the Hampstead Garden Suburb, were already in existence. These were all before the eyes of the people of this country during my period of 20 years.

Never were good and fertile and practical ideas more completely neglected or prostituted. Four million houses were built. The fact that four million houses were built is, of course, something; 333,000 houses were put up per annum in the last five pre-war years, which is more than we can do today. Rather more than a quarter of these houses were planned, designed and built by local authorities. Almost invariably they were well designed houses. More than half were built by private enter-

* Gillie and Hughes: *Some Principles of Land Planning*.

prise with the financial aid of the building societies. Over two million houses were built which represented the wishes of the great semi-detached heart of the smaller bourgeoisie.

What were the chief features of this outburst of inter-war house building? There was, I think we may say, no considered choice of site whatever, except that it was one suitable for building and at a cheap price. The surveyors who chose the sites could go out, find a site which would take houses and could be bought cheaply, and come back hugely pleased with themselves for securing a 'good' site. That was one feature.

The next feature was the destruction of far more farmland than the actual house plots required. They were scattered and sprawled in all directions, leaving interstices of unworkable farmland between them. There was no social grouping of any sort and no connection whatever between home and work. There was a random system of decentralisation and a flocking to certain centres of both industry and population. One of the minor defects of that period, which caused panic legislation, was ribbon development, and an Act was passed to restrict it in a feeble and futile manner when this vast rush of building was going on.

In that inter-war deluge there were, it is true, certain islands. Welwyn was begun and enough was built to show the qualities of the second Howard new town. The old man was justified. He has proved to be justified financially as well.

It is interesting to compare the architecture of Letchworth with the architecture of Welwyn. It resembles the work of the Knights of St. John at Rhodes and at Malta. There is a complete gap. Letchworth is prevailingly 17th century and Welwyn exceedingly Georgian. In addition to these big examples, there were many admirable small house groups within a tactical scale. The best ones were probably those built under the late Lord Addison when he was Dr. Addison. They were regarded as frightfully expensive, and the expense was not due to the architects piling on detail or ornament, but simply to the circumstances of the time. Sir George will correct me if I am wrong, but I think Sir Alfred Mond brought about a magnificent reduction in the cost of houses by not building so many which quickly reduced the cost. However, there were several very pleasing small housing schemes. Barry Parker's at Loughborough was one of the most successful. Adshead and Ramsey, Harvey in Birmingham and Percy Houghton in Yorkshire were responsible for very pleasing and charming schemes. Woodlands is a delightful piece of planning with a central green and houses grouped round. There was a charming London County Council group in the same period at Roehampton—I mean the Dover House scheme. There was one suburb which was a splendid example of urban architecture. I refer to the rebuilding of Kennington by Adshead and Ramsey. Finally, there was Wythenshawe, a quasi-new town, an attempt at carrying the new

town idea out, but not quite complete. Wythenshawe, in the new scheme for Manchester, may become a fully developed satellite scheme, but it is probably too near to Manchester for complete realisation.

I do not think anyone can talk about this inter-war period without a word on Becontree. It is not an island; it is more like a whale. It has been called the largest housing scheme in the world, I believe. It is a pure housing scheme. It has managed to house 120,000 people without being any more than a housing scheme. Miss Catherine Bauer in her admirable book is far too kind to Becontree. She sees there all sorts of groupings which I think do not exist. What one does feel when one first approaches it is, 'What charming little Georgian houses!' But they go on for ever!

In this welter of largely indiscriminate building, really valuable and important technical ideas and ideals were realised and adumbrated. These are well worth studying. Following Clarence Stein's admirable analysis, they can conveniently be grouped under three heads in descending scale of magnitude—the general disposition of population on a regional basis; neighbourhood or site grouping; and detailed arrangement of blocks and plots. I am saying nothing now about national planning for the simple reason that there was none during my period. Nor, at the other extreme, am I talking about the detailed planning of the houses themselves. That is another matter. Both these extremes are essential for a full study of any policy of housing and town planning.

As regards regional planning, Howard's ideas were being realised at Letchworth and Welwyn and to a certain extent at Wythenshawe. As to what these ideas were, I will not do more than advise those of you who have not done so to read Mumford's and Osborn's prefaces to the new edition of Howard's book.

I now come to neighbourhood grouping and site planning. We are fortunate in having two very valuable international surveys on housing in this period—that by Miss Elizabeth Denby and that by Miss Catherine Bauer. Both of these books give a picture of neighbourhood and site planning, as well as dealing exhaustively with the planning of the houses themselves. In Britain, you may say, there was more thought than achievement in the direction of neighbourhood grouping. I have already mentioned that Miss Bauer professes to see signs of community units in Becontree; and there has been a tendency—or there was at one time—to take photographs of incomplete housing schemes, possibly a central block, from the air and say that those are neighbourhood units. They are nothing of the sort. They were really first beginnings which eventually straggled out in various directions. Several such photographs were taken of Lenton Abbey, Nottingham. I am not speaking in any invidious way; they looked very well at that stage, but analysed more carefully they are seen to be merely the centres of housing estates and not neighbourhood units at all.

The most illuminating book I know on

the importance and value and difficulty of realising neighbourhood unit grouping is that by Ruth Durant: it is called *Waiting: Survey of Social Life on a New Housing Estate*. The interesting thing is that it is not an attempt at neighbourhood grouping in those incoherent schemes of semi-detached houses, designed by local authorities. It shows a strong natural tendency among human beings to live in a neighbourly manner together if they can. It is a pessimistic book, because the result was not finally achieved until great efforts were made by the local inhabitants. But one local authority practised the principle, in letting houses, of separating groups of people who came from the same neighbourhood in London (it was outside London) as much as possible so that they should not know one another when they lived in new houses. Instead of fostering the family and neighbourhood idea, the reverse was done for fear that they might colloquy together and start complaining about the new houses.

There has been a great deal of facile criticism—Miss Ruth Durant's is not; it is the very reverse—of the actual standards and methods we have been adopting so far in trying to plan our neighbourhood units and groups. I remember a certain Minister who turned up at a Town Planning Institute meeting wondering whether the standards were not arrived at by chance—tossing up and saying ten houses, or ten persons, per acre is a good principle so let us stick to it!

A great deal of research has gone into these standards, and you will see them put forward in the Dudley report, but much earlier in the period they were written about and attempted and planned, though perhaps not on a complete basis. There has been some recent criticism on the part of sociologists, and there was Holford's rather obscure address on the wireless, which I could not quite follow. (He is not here tonight!) I am a firm believer in the neighbourhood unit group, but I do not think we have said the last word about it. We are experimenting, but I believe the experiments we are making are pretty good and will be better than the complete incoherence characteristic of the typical inter-war twenty years.

When we come to the more detailed features of these schemes, the street, the block and the super-block, the contribution which was made during this period was of first-class importance. One of the earliest and most interesting experiments was by that remarkable soap boiler, Mr. Lever, at Port Sunlight—the block of houses with a great garden space between the close building. Though the open spaces were given up to gardens or allotments and not parks, this was very nearly an anticipation of the Clarence Stein super-block. There you have the idea of a great common space for a large block of houses.

There was Unwin's extremely interesting and valuable 'Nothing Gained by Overcrowding' in which several town blocks were combined. The regular practice then was that the town block was outlined with

its normal rectangles of roads to break it down, and there was no real advantage in it.

Then there was the *cul de sac*. Miss Bauer points out that there are some charming ones at Lübeck. I have seen less charming ones at Hull; slums with back-to-back houses but children play safely in them. For some reason, British councillors are mostly opposed to *cul de sacs*. I never knew why they were ill-disposed towards them, but frequently we had to cut out as many of them as we could. I remember one councillor saying that if a young girl was chased by a bad man she would not be able to escape. I suppose if you built houses in rows the chase might go on for ever!

It is very interesting how we did develop the *cul de sac* at an earlier stage than any other country. Miss Denby will tell me if I am wrong, but I think those which were developed at Welwyn are some of the most charming in the world. There are also a number of delightful ones in a little suburb built at about the same time outside Brussels.

Another development that was very interesting and contrasts with what we are trying to do today was Parker's close-fitting house-front and street-plan. The pattern for houses and roads was brought as close together as it could be. It was the early motor age, and there were not then the fears of traffic. So you got the corridor street, the very thing people are down on today. But why? Were they not a feature of the mediæval town? Provided it does not attract through traffic and it is used by only the occasional milk cart or car, what is the objection to it? The early plans of this type were very interesting, largely on the score of saving money and avoiding wastage in angle planning. They were most conscientiously carried out, and the effect obtained was better than with the houses built now, depending on lines of the eaves and ridges of the houses.

I should like now to read a short extract from Catherine Bauer's book about the next step: 'The next step was the English super-block, on the same principle as that originally suggested by Unwin, but now with most of the dwellings fronting on dead-end streets indented into the periphery of the block. By this plan very large economies in paving were effected, and at the same time whole neighbourhoods were rendered immune from traffic noise and dirt and dangers. Beyond this, modern English planning has not gone, but there is hardly a single mechanical old-fashioned gridiron in the entire body of post-war English housing developments. The common on the centre of the block is often quite large, allowing for tennis, allotment-gardens, playgrounds, and occasionally even schools.'

Perhaps the most interesting example of the great super-block with the open space is the extension of the Hampstead Garden Suburb. If you look up the plan, as I have done recently, you will see that you have only to reverse the direction of the houses facing round the local green and have roads outlining the green on the far side

of the houses, and you have practically the modern American idea of the super-block. Curiously enough, on the continent, the idea of a *cul de sac* was not developed to anything like the same extent as in this country.

The Zeilenbau became very popular. It has been suggested that it was an illustration of the influence of Hitlerism on planning. But it was much earlier than Hitler, and one of the best examples was designed by my excellent friend Alexander Klein in Haifa. These various ideas of the block and the super-block lead to Radburn in New Jersey and to Clarence Stein and the achievements of his associates. That is outside the scope of the paper, because I am dealing with this country, but not in date. Radburn was 1927. The plan was fully developed, and in Miss Bauer's delightful book you will see a sketch done by an amateur, illustrating the whole idea and theory of turning houses inside out and facing them inwards from the motor approaches on to the *cul de sac*, a fundamental conception which has had and is having an enormous influence on detailed development.

We are most of us familiar with that diagram of the brilliant young planner, Ernest May, who was in Unwin's office before he went to Russia. He produced that interesting plan of the rising scale of complexities—the super-block, the neighbourhood unit, the community. And perhaps we might break down the super-block into the Reilly Green and so create a fourth stage in complexity in your neighbourhood grouping.

The 20 years may, from my picture, appear to have produced a flood of sprawling houses—some individually good or well grouped, most of them either mediocre or worse and merely duplicated. Nevertheless, one-third of the total population of England and Wales has been rehoused at densities of about 12 houses to the acre, thanks to one section of the Tudor Walters report, which was used to excess without all accompanying requirements of grouping. (This does not, of course, apply to the density of urban flats.) The late Sir Gwilym Gibbon has pointed out that 'most of this new development has occurred under planning control. . . . Yet all is far from well. Much of the development has been sporadic, a good deal of it just continues the sprawl of existing towns without any endeavour to make real communities; there has been little effort to relate place of living and place of work so as to reduce, instead of adding to, the serious waste of long and fatiguing travel to and from employment; not nearly enough conveniently located open spaces have been provided; many amenities which could readily have been preserved have been destroyed, and a good deal of country has been needlessly spoiled.'

It might be added that owing to scattered looseness (not the density) of the sprawl, the maximum amount of farmland has been damaged and ribboning along roads has endangered life and interfered with traffic.

I am not saying anything about slum clearance. There was very little *planning* in slum clearance during that period. Houses were pulled down and flats were put up, and the boast was that the same number of people were rehoused on the site.

The period comes to an end, before the outbreak of the second war, with three great investigations—testimonies to our national discontents—the Barlow, Scott and Uthwatt reports. You will be familiar with them. It is interesting that they came when they did. I am not sure that the Scott report was not prepared partly during the war period, but the Barlow report was a pre-war report. These three reports told Parliament and the country at some length what was wrong—and made suggestions as to how to set things right. The technicians were ready with fuller equipment than ever before, though not perhaps in sufficient numbers. They had before their eyes warnings about what to avoid but also examples of ideas successfully realised, in this country and abroad. Then came the war—and we are still struggling with reconstruction.

DISCUSSION

Sir George Pepler, C.B., F.R.I.C.S. [*Hon. A*]: It is a very great pleasure to me to move, on your behalf, a very warm vote of thanks to my old friend and colleague, Sir Patrick Abercrombie. I think you have all been fascinated by his address, although if you know which twenty years he has been talking about, you are wiser than I am! In any case, they are all very interesting years, and he himself has played a great part in them. He likened me to d'Artagnan. I do not know whether he is Cardinal Richelieu, but Cardinal Richelieu designed and built a very nice town.

Sir Patrick talked of the town planning exhibition, and I must dwell on that. It was held in 1913, and I helped Geddes get it up. It was to be visited by parties of borough surveyors and serious people like councillors. In the centre were views of magnificent Renaissance palaces and gardens, and at the end a portrait of Henry VIII flanked on each side by paintings of women of that period. The engineers were a little puzzled. He told them: 'Here you see the magnificence of the Renaissance. No thought at all for the people, leading to this type of art.' The exhibition awakened interest, as interest has been awakened by what Sir Patrick has just said.

He also referred to the old 1932 Act and said that it did not mention agriculture. There he was wrong; it did. It said that agricultural buildings would be excluded from any control of their external appearance. That was the only reference to it!

In his picture of what happened that we do not like—despite the splendid work done by the planners and architects—he only lightly mentioned that the real trouble was compensation—but there is no question at all about that. These vast areas were zoned for building because of the fear of compensation. That also led to the futility of the preliminary statement to which he referred, because in these matters

the Minister had not only to consider whether a plan was good but whether it did serious injury to the private interests of any owner. Clearly, therefore, he had to have before him an exact plan and to consider it from that point of view. That was the root of the trouble in all this sprawling.

He was not quite right in saying there was no kind of programming in 1932, because that was the first Act to introduce what was called deferred development. This made it possible to zone land and yet say that it should not be developed until it could be shown that it would not involve excessive expenditure of public money on roads and sewers and the like or seriously injure amenities. In fact, before the war there were some schemes which did preserve the countryside. The North Riding of Yorkshire was almost entirely covered in that way, and good work was done.

What Sir Patrick did not tell you, when he referred to those reports of the town planning committees, was that he did about 80 per cent. of them himself, not one or two! He did the first one—and that was in 1921—for the Doncaster coalfield, and that report and plan is in the Library. There you will see a fully developed plan for a satellite town in 1921. The idea was to have Doncaster in the centre with the agriculture areas preserved and development kept to the groups of towns. You will find many other things in that report. It is sometimes thought that no one suggested a survey until it was made compulsory under the 1947 Act. You will find that the situation of the coal and all such matters were very carefully considered, and that was the work of Sir Patrick Abercrombie. I can testify that although a lot of the suggestions in the reports he produced were not carried out, in the main because of the difficulty of compensation, they had an influence and led up to the appreciation that we have now. Now that the 1947 Act is in force and compensation is largely out of the way, there is no reason at all why those ideas, brought up to date, should not be carried out, and I am sure that they will be.

I think Sir Patrick will entirely agree with me that we must revive regional planning. The Minister looks after planning, but it is the duty of the local planning authority; and the boundaries of the counties bear very little relation in most cases to a planning unit. We must therefore get the local planning authorities to join together and build up regional plans. The national plan will then emerge. This will be a very much better way than merely sitting down in London and trying to devise a plan.

There are many points in the paper on which I should like to comment, and perhaps I may be allowed to touch on one of them. He said that I was trying to get people to use the same notation in these regional plans. That is true, but my greatest difficulty was to get him to use the same notation for his various plans! Having heard him, you can imagine that he refused to be tied down. He was experimental, and he still is! It is wonderful for us that a man who has done so much and is such a great

technician in planning and in his teaching is still with us, hale and hearty. We wish he spent more time in this country, but it is grand that he should spread the gospel abroad; and it has been a wonderful experience tonight, you will all agree, to have heard these words of wisdom from him. I would not say that he is always correct in his historical allusions, but what matter? He gave us a grand address and I am sure you will wish to thank him very much.

Mr. Sheppard Fidler, M.A., B.Arch., A.M.T.P.I. [F]: It gives me very great pleasure to follow Sir George in seconding this vote of thanks. No one is more qualified than Sir George to propose it, but perhaps I have one or two qualifications which Sir George has not. He is too late for one and too early for the other. The first is that I was a student of Sir Patrick Abercrombie, and the second is that I am actually designing a new town at the moment.

My association with Sir Patrick goes back a good many years, though I still feel myself to be a young man in the profession. I remember, when I was still at school, reading an essay. It described a scene when Sir Patrick had been at Prestatyn and had overcome some local champion. I wanted to see what this man was like, so I went to Liverpool under Sir Charles Reilly and afterwards under Sir Patrick, and I discovered what sort of men they were.

I refreshed my memory this evening and found that Sir Patrick is or was consultant to London, Edinburgh, Plymouth, Hull, Bath, Bournemouth, the north-west Midlands, Dublin, and so on, and his name has appeared in lights all over the world. We are extremely fortunate in having him here because he very seldom stays very long in one place. He mentioned names like Unwin and Parker; perhaps all the young men do not know their work very well, but having been with Abercrombie, I have heard of them. I think everyone has heard of Abercrombie, and that name for most of us means a tremendous interest in planning for the human family.

We have learnt a considerable amount from what he has told us about the 20 years following the first World War. We all realise the defects of that time and we still, if we see something that is poor in design, say it is good old by-law planning or suburban planning, or something of that kind, which are things we are trying to avoid. It is interesting to hear that they were good projects, and it is up to us to try to rectify the defects which he talked about. We have new towns growing. Perhaps they are not growing as fast as they should, but there are a good number. Further, the neighbourhood principle is definitely accepted as one of the essential features of those towns. Another fact that has been recognised is that work should be near the home. In most new towns, the establishment of industry has come first, and the houses followed afterwards. I think that is the right way round.

I have enjoyed this talk enormously, and I am sure that you have, but I should like to ask our President to be sure to ask Sir

Patrick to come back and tell us about the next twenty years.

Mr. F. Kerr-Lucarotti [A]: Perhaps Sir Patrick would like to comment on the fact that very little is apparently heard of Hampstead Garden Suburb and it is very little talked of among the ordinary lay public. I wonder why there has not been more propaganda about it during the years?

Mr. A. W. Kenyon [F]: Sir Patrick has been talking about things which may be a little remote to some of the people who are here. It is not remote to me, as an older member and as architect of Welwyn Garden City, along with my colleague, Mr. de Soissons, who is still carrying on the good work. It was interesting to hear the names mentioned by Sir Patrick. People like Ebenezer Howard may not be very well known at the moment, but his book is well worth reading and is extremely interesting. He was a very fascinating person, and we owe a very great deal to him for Letchworth, started as an ideal and carried on for many years. Then, not satisfied with that, he bought the land without any money at all for Welwyn Garden City. I did not go there at the very beginning, but I was there a long time. The influence he had because of his keenness and enthusiasm was remarkable. He was very anxious to get people out of London and out of squalor into the new town.

Welwyn may sometimes be looked upon as something rather passé and Georgian, but it is still worth looking at, especially on a lovely June day, when the trees are out, and the gardens are kept beautifully. Those who have not seen it might learn something from it.

The Hon. Lionel Brett [A]: I should like to ask one question. Sir Patrick spoke a good deal about the super-block, by which I believe is meant the planning of houses or flats in such a way as to provide open space behind the little private garden at the back of blocks of houses, so that beyond your back garden there is space and not another back garden.

That idea is, of course, most effective on paper and would no doubt be most attractive in practice. But there are two objections to it which seem nowadays in this country to be fundamental. One is the lowness of density that results, and another is the upkeep of that green space which is not large enough for proper sports grounds and is no more than amenity space.

I do wish Sir Patrick could help us with this, because those of us who would like to build in that way invariably find that it results in too low a density and too expensive a layout.

Major T. F. Thomson, A.M.T.P.I. [L]: Sir Patrick has emphasised architectural group planning throughout this period. It occurs to me that sufficient stress has not been laid in subsequent remarks on the tremendous contribution that he himself has made to planning from the architectural point of view. He has welded together the architectural and planning aspects. I was wondering whether, in his approach to the modern and rather tedious method by

which plans are prepared, he has considered their architectural significance. I should like to hear what are his views.

Miss J. Adburgham [L]: Listening to Sir Patrick and to his historical comments and to the names of all the ace planners to whom he referred, I was reminded that there were lay people who were promoters of planning. I think I am right in saying it was the Marquis of Aberdeen who was in the forefront and who gave the prizes for a competition for replanning Dublin, which incidentally, I need hardly say, was won by Sir Patrick. A certain amount of credit should always be given to lay people who are still the patrons of architecture and planning, although it is done more or less behind the scenes these days.

Mrs. C. M. Munns [A]: Although I may not be very old, I can boast that I have heard of Sir Patrick Abercrombie all my life in that my father attended his lectures at Liverpool University.

I should like to argue with him about one or two small points. The *cul de sac* is very pleasant on paper, but speaking for myself and for quite a number of other people, I do not like living in a *cul de sac*. I like to live where there is something going on. That is why I liked his reference to corridor streets. At the moment I am living in Eltham. We have an estate which is always referred to there as 'the pretty houses'. Sir Patrick will probably know the estate to which I am referring. There we have the corridor street, and it is surprising how it appeals to everybody—architects, planners and laymen.

We are inclined to plan for planners and design for architects. I find, myself working in local government, that one is full of enthusiasm. You leave school, perhaps do a post-graduate course and mix with architects, with people who know what you are talking about. Then perhaps you marry out of the profession. Your husband comes in one day and says, 'Have you ever heard of a man called Corbusier?' That actually happened to me. Or, 'Have you ever heard of Mumford, or Gropius?' We are inclined to forget within these four walls that so many people do not understand the things we understand. In local government we are dealing with councillors—I do not want to say anything rude about councillors, because at the moment they butter my bread—but they do not understand. I only wish that Sir Patrick could be let loose in our council chamber some night when we have a planning committee or housing committee.

I have another little anecdote. The husband I have just referred to as knowing very little about planning came in and said, 'I was looking at an antique shop this afternoon in St. Martin's Lane, and in the window there was a diploma of the Town Planning Institute. The name on it was John Burns. Who is that?' I told him who John Burns was and sent him back the next day to buy the diploma. I have sent it to the Secretary of the Town Planning Institute who was very pleased to receive it as a historical document.

Mr. N. Brandon-Jones [A]: I should like to make a comment on the super-block. I happen to live in a very nice, old-established district, a residential district, in Blackheath. I have behind my house a very nice open space which is delightful to look at. We have no problem of upkeep because it is used by Greenwich Corporation as a nursery garden. But there is one horrifying feature—the London County Council think it will be a very nice place to put some more houses. And if it is uneconomical they will pull down the houses round it. I should like Sir Patrick's views on what can be done to prevent people from doing that kind of thing and spoiling the amenity of the district.

Mr. William Crabtree [F]: I would like Sir Patrick to say a little more on the density he would suggest for houses. Woodlands near Doncaster is a delightful place, but the density is impossible. It has not been followed in any development round about.

What we need at the moment is architects who can design pleasing groups of houses at reasonably high density. It is not very difficult if you have plenty of open space, but to get the right mean between high density and a reasonable amount of open space and of gardens for the people, bearing in mind that many people are not gardeners, is difficult. It would help me if Sir Patrick could discuss that point.

Sir Patrick Abercrombie: One thing the discussion has brought out is the value of looking back and studying these past periods. It is very interesting to hear someone talk about the Hampstead Garden Suburb as little known. To many of us it is one of the best-known areas of development in the country. That shows how worth while it is to study history, even recent history. What I have been talking about tonight is recent history, and we learn a great deal in avoiding the mistakes as well as in seeing the charm of modern ideas.

Mr. Kenyon's remarks on Welwyn were very interesting. At one time Welwyn was a Gospel piece. You had to accept Welwyn completely. Now we look at it with critical eyes. We appreciate its good points and see certain features we do not like so much—not necessarily the design of the houses, but certain features of planning. That is the way in which we must and do appreciate these works of art and architecture.

A number of speakers have raised very difficult questions. Mr. Brett asked when a block is a super-block. I read the extract from Miss Bauer's book for that very purpose. She detects the super-block in those early groupings of Unwin, where you eliminate a number of roads, encircle the block, and call it a super block. That is strictly the right word. We have recently considered Mr. Clarence Stein's version of the super-block. It is building, as we know, of very low density, and a great deal of money is required for the upkeep of the open spaces. Mr. Brett has told us they are purely amenity spaces, and they are very charming.

I am not going to talk about density tonight, but it is a problem today. You will

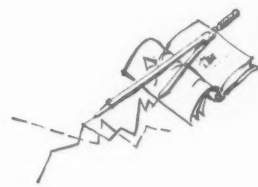
notice that in the Greater London plan we did not go in for these large super-blocks. We felt we could not afford them. The American green belt towns were built in very special circumstances. They were quite small—only one neighbourhood unit in each. They are delightful and charming and choice specimens. Whether we can get them in this country I very much doubt.

I was glad that one of the younger speakers said a word for the corridor street which has been anathema. Mumford has only to see the word 'corridor' and he almost foams! He accused Welwyn of being full of corridor streets, and Clarence Stein's plans are not. I took the trouble to examine the plans very carefully, and all of them do use a certain amount of building on the roads. What you try to do is to plan the unit so that it does not attract through traffic. I did not mention it, but it is necessary to say that a good deal of that corridor planning and precinct planning which was so carefully thought out in those days has faded out. The engineers insisted on having an unnecessarily wide and expensive road. Gordon Stevenson has pointed out recently that a great deal of the space we want for playing-grounds could be taken off the roads.

I like *cul de sacs*: I do not agree with the speaker, although I live right in a village street and one side of my house is on the street. It is a precinct village, but I do like the *cul de sac*. The advantage of studying history is that we see the advantages of living on the street and also of the *cul de sac*, used with discretion.

Miss Adburgham was right: we owe a tremendous amount to the layman in planning. Robert Matthew pointed out in his review of Stein's book the germ of the super-block is found in a sketch plan prepared by an amateur, a non-architect. By making use of people and getting them interested in our subject we often get results that are better than purely architectural ones.

I would like to remind my dear friend, George Pepler, of an incident that happened over the Doncaster plan which shows the advantage occasionally of following the advice of planners, especially on the basis of a survey. One of the features of the plan was land let down by subsidence and which became liable to flooding. Very soon after that, an area shown on our survey to be liable to flooding was used, with the blessing of the department concerned, for housing purposes. The houses were put up and very soon flooded out. That is an elementary instance of how the plan is sometimes of immediate value, and particularly the survey connected with it.





Perspective by J. D. M. Harvey of Mr. Wornum's original competition design for the R.I.B.A. building (1933). It shows No. 68 Portland Place rebuilt and the two future storeys

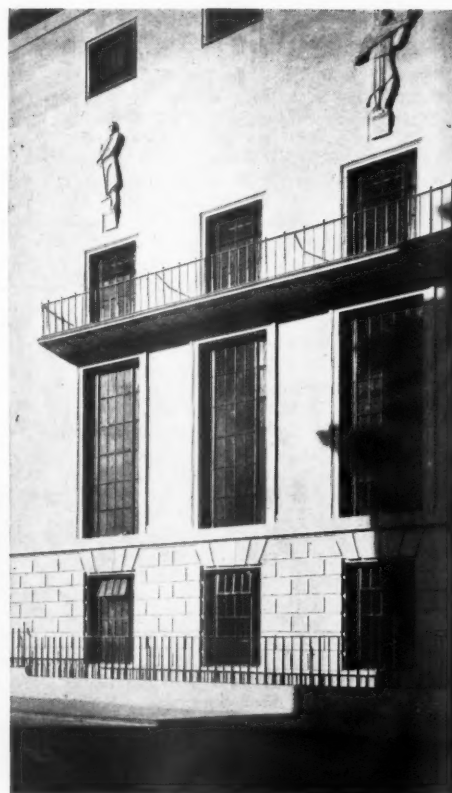


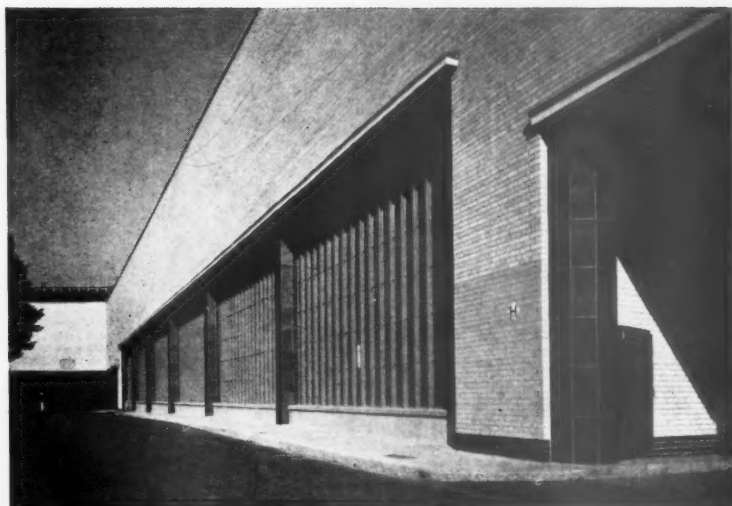
The Royal Gold Medallist 1952

Illustrations of some of the work of
George Grey Wornum [F]



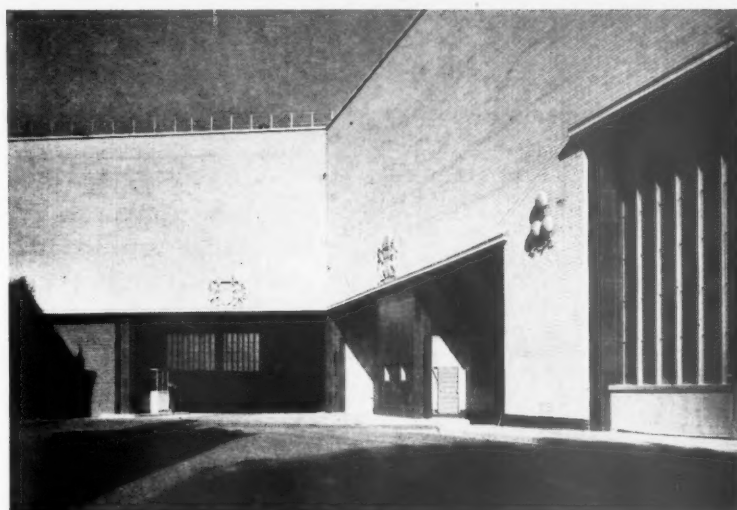
Above: Flats on the Larkhall Estate, Clapham, in partnership with Louis de Soissons, O.B.E., A.R.A. [F]. Right: detail of the Weymouth Street façade of the R.I.B.A. Building





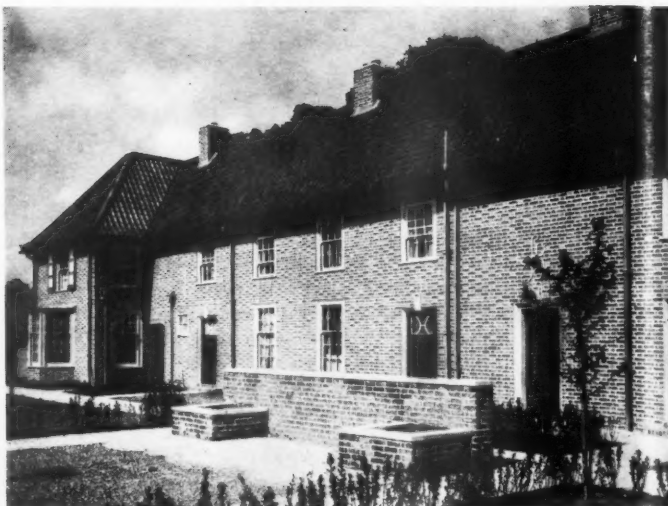
Above and right: Highways Depot of the City of Westminster for which Mr. Wornum was awarded the London Architecture Bronze Medal for 1938

The General Meeting fixed for Tuesday 1 April at which the President was to have presented the Royal Gold Medal to Mr. G. Grey Wornum has unfortunately had to be postponed, because in the present state of Mr. Wornum's health it would place too great a strain on him. The present arrangement is that the Medal will be presented at a General Meeting on Monday 16 June.



Below: Flats at Denmark Road, Lambeth. Below right: flats at Wyvil Road, Lambeth. For the Lambeth Borough Council



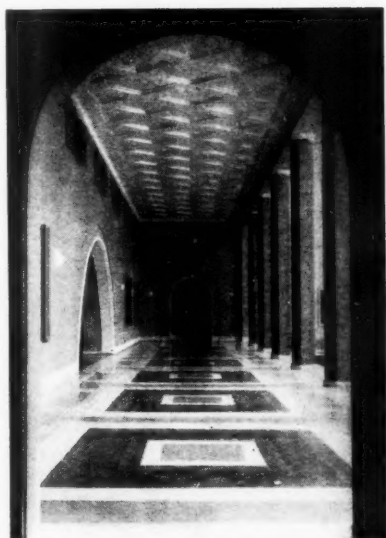


Above and middle: Views of the Haig Memorial Homes at Liverpool. Top right and bottom left: Haig Memorial Homes at Morden, Surrey. Bottom right is 'Loowater', a private house at Heacham, Norfolk. These were designed in partnership with Louis de Soissons, O.B.E., A.R.A. [F]





Above and left: The R.M.S. *Queen Elizabeth*. First-class dining-room and lounge



Above and centre: Two views in the British Girls' College at Alexandria



Private house, No. 39 Weymouth Street, W.1

Right: Exterior and drawing room at No. 15 Phillimore Gardens, S.W.



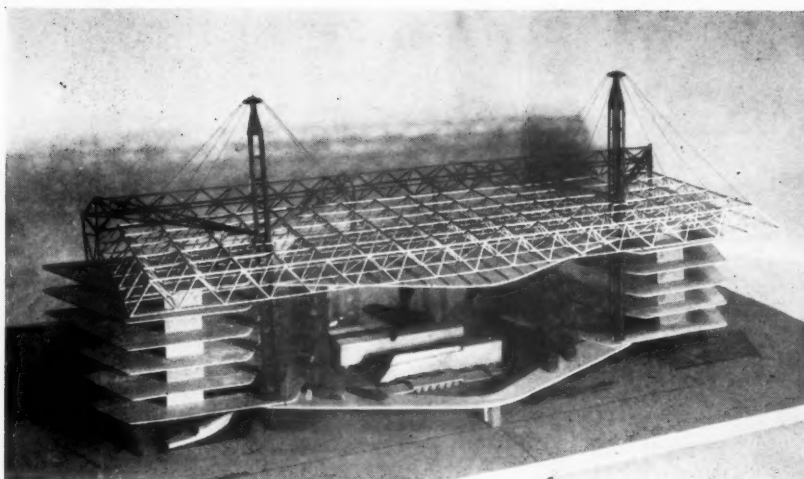


Fig. 2: Model of first design by Arcon for the Pavilion of Transport at the South Bank Exhibition

Space Frames and Stressed Skin Construction

By Felix J. Samuely, B.Sc.(Eng.)Lond., A.M.I.C.E., M.I.Struct.E.

Read before the R.I.B.A. on 12 February 1952
Mr. R. E. Enthoven, Vice-President, in the Chair

I AM HONoured at being given the opportunity of talking to you on a subject that I think is of equal interest both to architects and engineers. For a long time now it has been the custom for structures to be designed consisting of members each of which, together with its loads, is in one plane, and can easily be set out on a drawing board. In early days, when buildings were not preconceived and were not drawn out to the extent they are today, the tendency to use members in one plane only was not so apparent, and this recent practice grew up only as the designing of buildings developed. In the middle ages, certain standard vault constructions, which are really space constructions, were used, but since that time, and especially after the advent of iron and steel, simple plane constructions have been more or less the rule.

This was necessarily restrictive to both architects and engineers, and it is only during the last 30 or 40 years that space constructions have gradually begun to make their appearance again. Such constructions cannot be conceived in one plane and have to be shown in their entirety either in several planes or in isometric. Architects have been very slow to adopt these constructions and even today there are only very few that have actually been carried out.

I think that, at the moment, we are on the eve of a great revolution, and that hundreds of years hence, people will look

back on this time as being the one when construction changed over from 'plane' to 'space' and saw the birth of a new architecture.

These space constructions open up entirely new fields of construction and planning, but at the moment I can show you only what has been carried out and indicate the enormous possibilities that at the moment can only be glimpsed. The following examples illustrate the type of construction to which I refer, constructions that are different from earlier practice, not only in material but in conception.

Fig. 1 is of a theatre in Copenhagen. It is a type of dome construction, but is an entirely space system. The whole roof is one slab and there are no internal beams.

Fig. 2 shows a model of the first design put forward for the Pavilion of Transport for the South Bank Exhibition. The roof of this building consists of a space frame built up from latticed steelwork and suspended from two pylons. This space frame was designed to carry several of the lower storeys as well as certain of the aeroplane exhibits; the design was not actually carried out. The construction used finally was also a space frame but of a different type.

Fig. 3 illustrates the design for a restaurant which it was proposed to erect on the Continent. Unfortunately the scheme was never carried out. It was designed on the following principle. There are six columns; these six columns carry a star beam which



Fig. 1: A theatre in Copenhagen

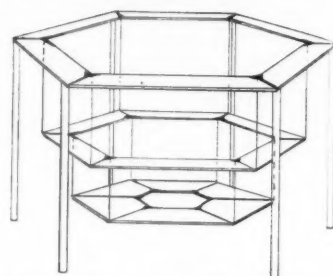


Fig. 3: Sketch of a hexagonal restaurant

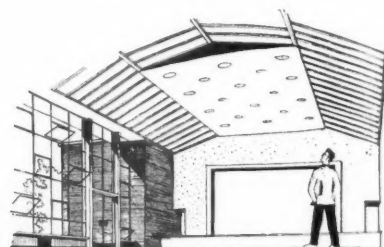


Fig. 4: Hall of a technical school at Wigan. Howard V. Lobb [F] and G. Grenfell Baines [A]

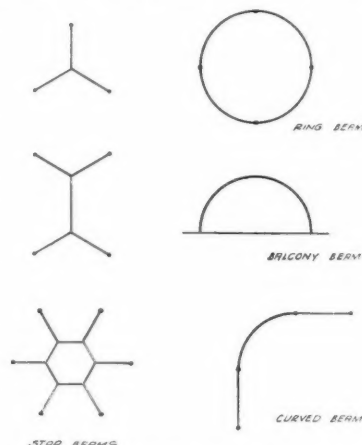


Fig. 5: Star beams and curved beams

cantilevers inwards from the columns to form the internal hexagon. The lower floor, also hexagonal, is suspended from this top star beam, and from this lower beam yet a third is suspended. This is not, of course,

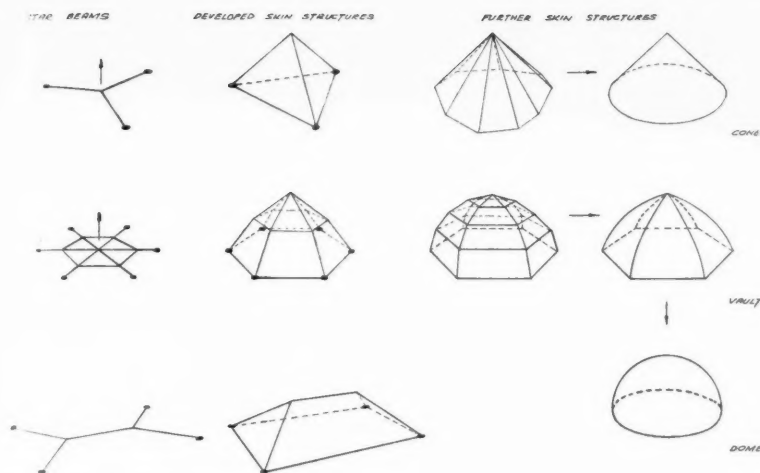


Fig. 6: Development of star beams

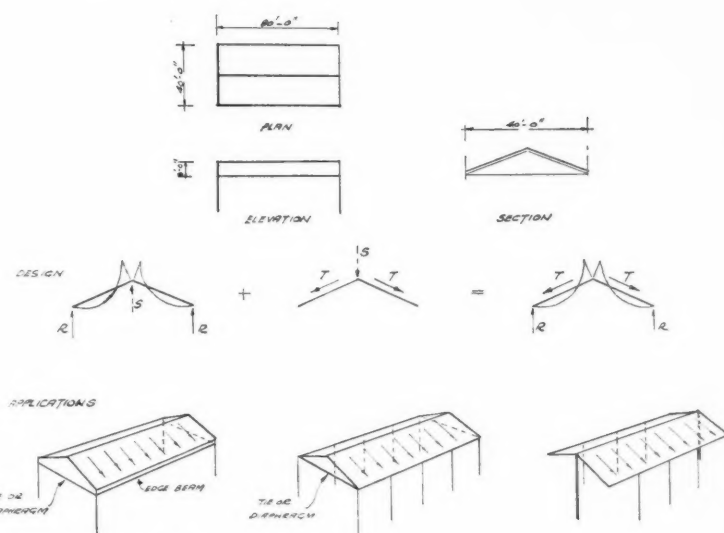


Fig. 7: Pitched roof theory

the most economical of structures, but it would have given the architect a very interesting 'space' for his restaurant, free of all internal beams and columns.

The Assembly Hall in Fig. 4 is now being erected for a school in Wigan. As the building is still under construction I cannot show you a photograph. The shell roof construction is built up from a number of precast concrete trough units laid side by side, supported temporarily on scaffolding. The units are then covered with in-situ concrete, which provides the longitudinal stiffness. The main hall is 50 ft. across and 75 ft. long, and it cantilevers out beyond this a further 20 ft. to 25 ft.

The point I want to emphasise here is that these designs are possible. That structurally it is possible for the architect to prepare his design without internal beams and columns to interfere with his planning. Other buildings that I would like to

mention, where the structure is conceived in space, are the octagonal roof for the competition design of Coventry Cathedral put forward by Mr. David Aberdeen, the Penguin Pool at the London Zoo and the Dome of Discovery.

I would like to go briefly into the theory of these space constructions: how they are built up, and why they are possible over such large areas. There are three main types of construction to be considered, the star beam, the space frame and the skin structure. Star beams and curved beams are beams that have at least three supports in space. Ordinary tables may be considered as space frames, usually with four supports. In building, however, we are rather reluctant to venture into anything of this nature and the number of star beams that have been carried out is regrettably small.

Fig. 5 shows a few examples of possible star, curved and ring beams. These are the

simplest of all space constructions and can be carried out in timber, steelwork or reinforced concrete. The first beam has three arms, each supported at one point. The three arms must be rigidly connected in the centre. This beam can be elaborated, as shown in the second and third of the diagrams, and there are many other possibilities. These star beams can be applied only to specially shaped buildings, for example the third one could be used only for a building planned as an octagon. The first type has been used for crane girders.

The next development is the ring beam, shown here resting on four supports. Beams of this type can either form a complete ring, or only part of the circle and rest on three supports. A balcony beam could be constructed in this way, in the shape of a half circle as shown in the fifth diagram. Finally there is the curved beam here shown resting on four supports, which has been used for the corner of a building where columns in the curve were unwanted.

Fig. 6 shows how these simple star beams can be developed into space frames and skin structures. Take the first star beam in the figure, which consists simply of three arms, and raise the centre point. Now assume the surface of this figure to be made solid and the star beam removed. This will result in the structure shown in the next column to the right. Take the second star beam and raise each point on the inner hexagon to the same level, then take the centre point and raise this a little further. You replace the frame by the skin. The resulting shape is again shown in the second column on the right. Take the third star beam and raise the two points of intersection. This results in a type of hipped roof construction. The same system can be followed with more complicated shapes, if for instance the first two are built up from many-sided star beams instead of the simple triangle and hexagon shown in the first column of the figure. If the many sides of the figure become infinitely small, the first one would result in a cone, as shown on the extreme right, and the second one in a vault, and finally a dome.

If you take any star beam, and raise part of it, the skin between the framework becomes a structure that is capable of carrying itself over an area of considerable size and any desired shape. No additional framework is needed to support such skin structures. Now, how is this possible? How can these structures stand up without any other supporting framework? The answer is that owing to the rigidity of a slab in its own plane where any two planes intersect at an angle, the line of intersection acts as a beam. To explain this, stand two cards on edge supported at a certain distance apart, lean them together at the top, and they will support one another without any additional framework. The line along which they come together at the top acts as a beam that supports each one of them. This 'beam' forms a second support for each card, making each one a slab on two supports.

A simple pitched roof, constructed on this principle, is shown in Fig. 7. Assume there is a vertical force 'S' acting on the ridge of the roof, as shown in the centre

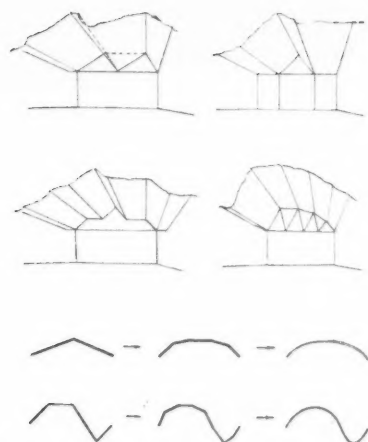


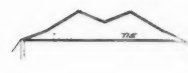
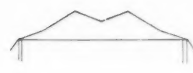
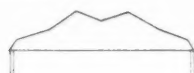
Fig. 8: Sections through prismatic roofs

diagram. This force can be resolved into two components acting in the directions of the roof slabs. The slabs have great stiffness in these directions to resist the forces. This means that, although there is no beam in the centre, the two roof slabs can carry this centre load, provided they are supported at their other ends. The lower edge of the slabs must be supported either on a beam or a series of columns, as shown at the bottom, to carry the forces along to the ends of the roof. At the ends of the roof, the forces from the slope of the roof must be again resolved, this time into a vertical and a horizontal component. The vertical components are taken by columns, and the horizontal components by a solid diaphragm or a tie member. In this way, roofs consisting of simple slabs, without supporting beams, can span considerable distances, provided that somewhere diaphragms and columns are provided to take the forces that are collected from the slabs. With this type of construction the actual slab has to be strong enough to span only from ridge to eaves, a comparatively short distance. If the actual slab is not strong enough, intermediate ribs can be arranged to span this distance, but they will be relatively small as the span is short. Alternatively, instead of a simple pitched roof, the slabs can be cranked at other points, thus reducing the span of the actual slabs still further. At each crank the intersection of the two slabs acts as a beam, in the same way as the ridge does in this example.

The fact that where two slabs come together at an angle, this line of intersection can be considered to be a beam, can be repeated an infinite number of times. When the edge of the system is finally reached, and there is only the one slab and not another further one to form a line of intersection, there is, of course no beam available. Here a beam or a row of columns must be provided, as shown at the bottom in Fig. 7, or else the last slab has to cantilever from the last line of intersection.

Developing this principle, almost any shape of roof can be constructed to suit the architect's requirements. In principle, it is important to appreciate that it is just as

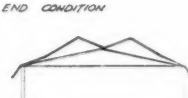
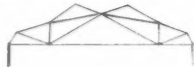
END CONDITIONS



ROOF SECTIONS



END CONDITION



ROOF SECTION



PLAN

Fig. 9: Theory of diaphragms and ties

easy to construct a roof that is concave as one that is convex. Concave roofs are sometimes very valuable for acoustic purposes in halls, theatres, etc. Fig. 8 shows a few of the outlines that can be adopted. You will see that one of the illustrations in this figure (the second one down on the left) has in part the concave feature I mentioned before, which is so useful acoustically. Note again the diaphragms which can be seen quite plainly at the ends in Fig. 7 and again in Fig. 8. Always remember that the system will not stand up without a diaphragm or tie member. The diaphragms, which are shaped to follow the outline of the roof, can either be solid or latticed, of concrete or of steelwork. The skin structure and the diaphragms act together as one unit, and this combined action must be thoroughly understood. There is tremendous scope here for architectural expression.

Where a roof consists of more than two slabs, a tie member at the end is not as effective as a diaphragm. Each intersection acts as a beam and each such beam should be supported at the ends. A diaphragm supports all beams, whereas a simple tie holds only the two beams to which it is directly connected. A tie can still be used, even when there are more than two points to support, but it is not such a good construction, and the skin structure must be correspondingly stronger. Unless the ends of the intersections are supported, they cannot act as beams. This is explained by Fig. 9, from which it can be seen that, with a complicated roof outline, a tie produces much greater bending moments than a diaphragm. Where a roof consists of several intersecting slabs, and a tie member is to be used, it is essential that this tie is not right at the bottom, but is lifted up to

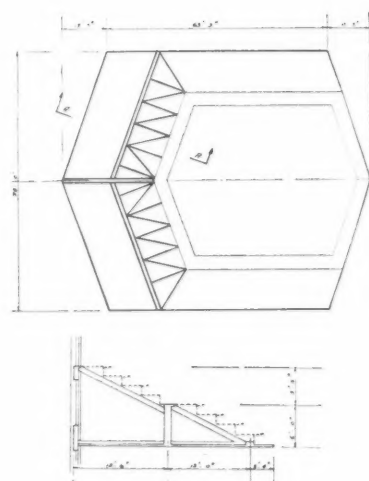


Fig. 10: Gallery construction in the hall at Woodberry Down School, London. Robert Matthew [4], Architect to the L.C.C.

the first intersections. The two cases are given in the two diagrams on the right-hand side at the bottom. In the first diagram, where the tie is shown correctly, the last two slabs will cantilever out, and the centre part will act as a rigid beam. In the second diagram, where the tie is shown at the bottom, the first two points of intersection are not supported, and the roof as a whole is not held at sufficient points to act satisfactorily.

Any of these roofs can be carried out both in latticed steelwork or in reinforced



Fig. 11: Staircase at the Pavilion of Power and Production, the South Bank Exhibition. G. Grenfell Baines [A] and H. J. Reifenberg

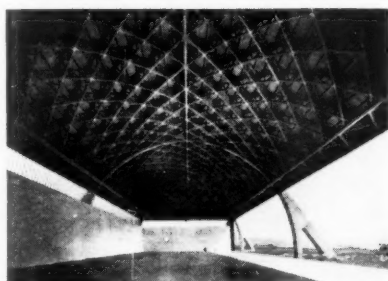


Fig. 12: Hangar near Rome. P. L. Nervi



Fig. 13: Roof of hall, Abingdon Primary School. Bridgwater and Shephard [F A]

concrete. There is no doubt that reinforced concrete engineers have been much more enterprising in this field and have been largely responsible for advancing this type of construction but there is no reason why latticed steelwork should not be used, with a light roof covering. Precast concrete, timber or aluminium can be used equally as well. In reinforced concrete, flat slabs are easier to shutter than shells or vaults.

I have not discussed ordinary shell construction at all, nor will any of the figures

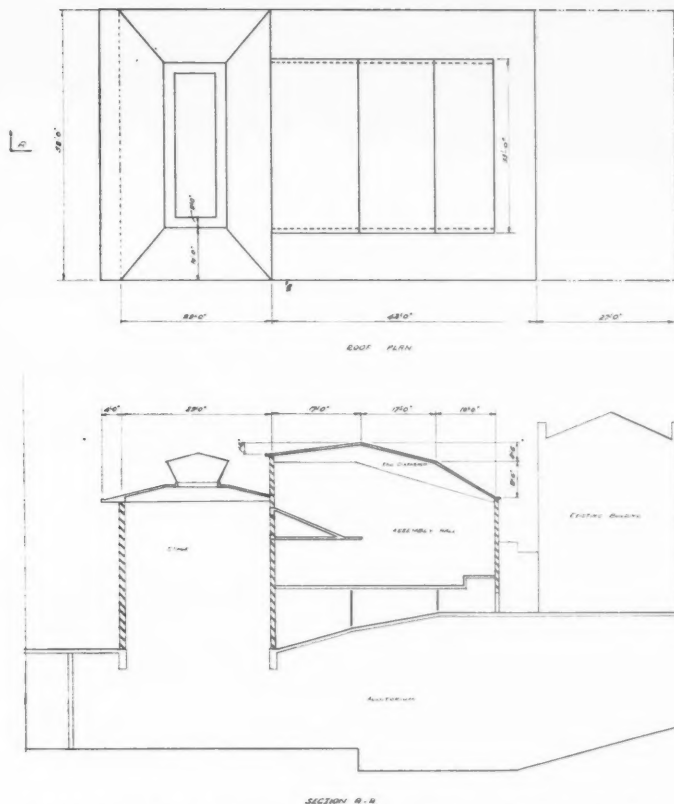


Fig. 14: Roof plan and section of theatre for the R.A.D.A. Alister MacDonald [F]

illustrate this type. This is not because shell construction does not belong to this type of structure, but because in recent years one particular type of shell roof has become so familiar that there is a danger of architects considering it to be the only possible skin structure. I am endeavouring to show here the variety of outlines that can be used and which is almost limitless, restricted only by the architect's own ingenuity and needs.

The examples given are mostly of the prismatic type, as these will be the most frequent, but pyramids, cones or irregular shapes are just as feasible, always with the proviso that the lines of intersection between the planes represent a star beam.

This theory has been applied in practice to only a small number of buildings, some of which are illustrated in the following figures. It is extremely likely that many more applications will be introduced in the future and the architect has an enormous field for his imagination in developing architecture based on these structures. I will now show applications of star beams, space frames and skin structures.

Fig. 10 shows a star beam used for the gallery of an assembly hall in a school at North London. This is now in course of erection. The gallery is supported at three points, and the star beam, resting on these three points, can be seen quite clearly. The construction is of reinforced concrete and this star beam fits the requirements much

better than a straight beam would have done, as this would have to be very shallow at one point. For reasons peculiar to this one building the star beam cantilevers back and carries the back wall and the roof at the end.

This star beam is amplified by two slabs, which can be seen in the cross section. These two slabs together act as a beam and are capable of taking loads. The bottom horizontal slab is solid, but the inclined slab is not, as the actual gallery is built on top of it. The latter is latticed construction, in precast concrete. The whole gallery construction together acts as a torque beam. Another example of this type will be shown in a later figure.

Fig. 11 is a small space frame used for a staircase outside the Power and Production Building at the South Bank Exhibition. Steel tubes and round bars make up the central spine beam, and this spine beam, as you can see, alters its plane to suit the direction of the staircase. The treads for the staircase cantilever out either side of the spine beam. This change of direction for the beam, although it looks complicated, is quite simple to achieve with a space frame.

Fig. 12 shows a hangar near Rome. As I have mentioned before, skin structures should not be confined to reinforced concrete. Here, although the main frames are reinforced concrete, the actual roof construction is of steel. Latticed steel beams,

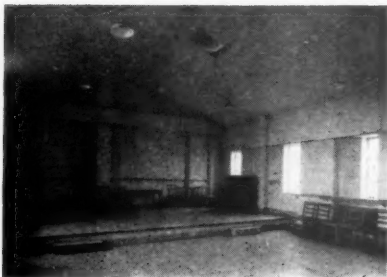


Fig. 15: Music room at the R.A.D.A.



Fig. 16: Brewery at Alton



Fig. 18: School hall at Eccleston and Windle, Lancs. G. Grenfell Baines [4]

arranged diagonally, produce the same kind of shell roof, and the reinforced concrete frames, acting as diaphragms, can be seen quite plainly. This diaphragm runs right round the outside of the building and above the roof is quite thick, although in the figure only the lower parts are seen fully.

Fig. 13. This is the roof for an assembly hall of a school at Abingdon now nearing completion. The framework, built up from a square base into a pyramid, is of precast concrete. The main precast units have steel connections, and as can be seen, the inside of the building is completely free of construction. Originally, this roof was designed in hardwood, and although finally precast concrete was found to be cheaper, it is perfectly possible to construct the same system in timber. A remarkable example of such a roof carried out in timber is the Octagon at Ely Cathedral. This, although over 700 years old, is built on exactly the same principle. I cannot trace another example between Ely and about 1850.

Fig. 14 shows in plan and cross section the theatre for the Royal Academy of

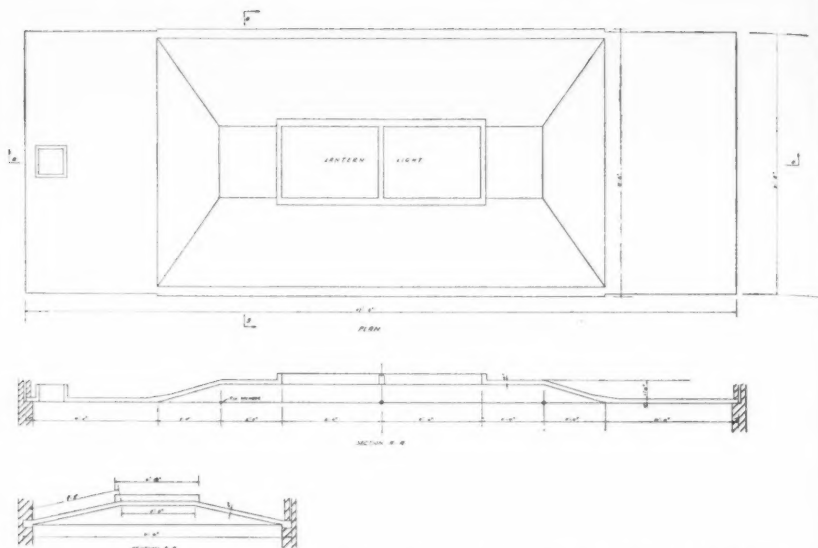


Fig. 17: Roof of hall, Secondary Modern School, Harrow. John and Elizabeth Eastwick-Field [A/A]

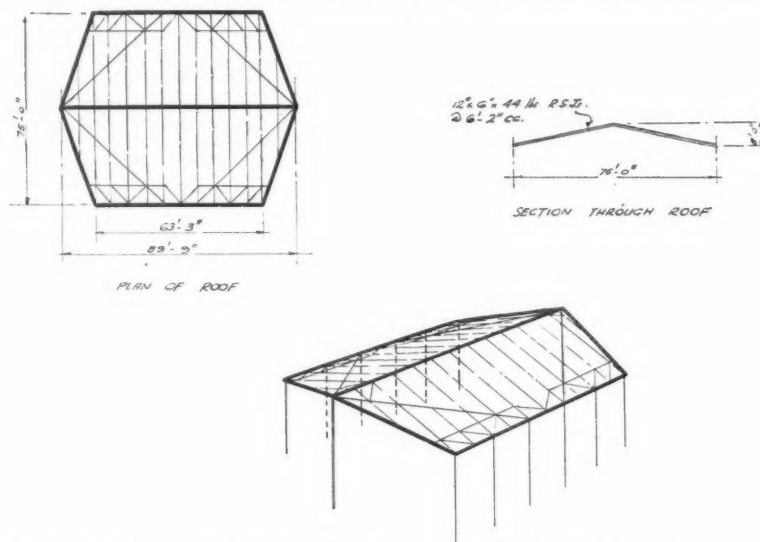


Fig. 19: Roof of assembly hall, Woodberry Down Comprehensive High School

Dramatic Art in London, which, destroyed during the war, is now being rebuilt. A skin construction, in reinforced concrete, is to be used both for the roof and the lantern lights. The line of the diaphragm can be seen at the back. The only part of the building so far completed is the pitched roof part on the extreme right, which is shown in Fig. 15. Only part of this section was rebuilt, and the existing walls were used. The chimney at the back, which was also existing, rather plays havoc with the appearance of the structure. With this roof, as there are only two slabs, a tie member was used at each end in place of a diaphragm, and this tie beam can be seen at the back. The edges of the roof were supported all along the sides on a beam. This is only a small span—45 ft.—but

with this type of construction it was possible to leave the inside of the room completely clear, although the roof slab is comparatively thin, much thinner than would have been possible if it was spanned horizontally across the building.

Fig. 16 shows a brewery building recently erected, on the same principle. The roof is made of a series of three concrete slabs each spanning a much shorter distance than the full width of the building, which would have had to be spanned by a flat slab. The intersections of the slabs, acting as beams, support the slabs.

Fig. 17 is again the roof over a school assembly hall, this time at Harrow. A large part of this roof is flat, and only the ends slope. This applies in both directions, and on the plan it can be seen that there is an

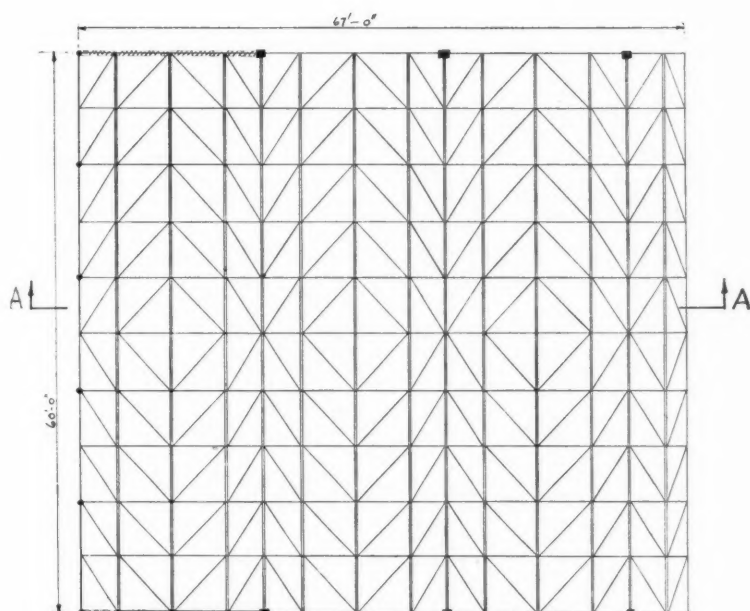
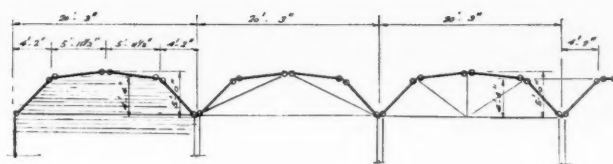


Fig. 20: Roof of proposed factory building

intersection between slabs at each corner and the line of intersection is diagonal. Following the same principle as before, these intersections act as beams. While this type of roof is no cheaper than a more orthodox roof, it is not more expensive either, and it has the great advantage that there are not projecting beams.

As I have mentioned several times before, these skin roofs can be carried out in steel-work just as easily as in reinforced concrete. Another school assembly hall, this time in Lancashire, is shown in Fig. 18. This consists of a series of pitched roofs, with a latticed girder in the plane of each slope. These latticed girders disappear into the roof itself and are not obtrusive in the way ordinary latticed girders, spanning right across the building, can be.

Fig. 19 is the hall roof of the school, of which the balcony is illustrated in Fig. 10. The span is 76 ft. and the plan is octagonal. The roof rises from both sides to a centre ridge. The construction is latticed steel-work, the eaves beam only being fully latticed and suspended by hangers, in the plane of the roof, from the ridge of the gable. This is equivalent to latticing the whole area.

Fig. 20 shows the roof construction for a proposed factory building also in steelwork. The span of each bay is 60 ft. but it could quite easily be made for 100 ft. or any other required dimension. There is latticed construction in each sloping plane, and the diaphragm construction, shown in cross sections, occurs only at the gables.

Fig. 21 shows one of the designs entered for the competition for Coventry Cathedral. The roof was designed to span right over the whole area of both the old and new building. In spite of the large area, the cost of the roof structure would have been a comparatively small item in the total cost. Where the slope of the roof becomes very flat, diaphragms would be necessary to stiffen it. These in themselves were to be space frames, and they can be seen in the section at the top left-hand side.

Up to now most of the applications illustrated have been for roof constructions. Another example of a torque beam, of the same type as that described in Fig. 10, is shown in Fig. 22. This is the gallery construction for the Royal Festival Hall. The whole gallery is one beam or space frame and it is capable of supporting forces at the front edge of the gallery and in the plane

of the gallery, as well as those occurring at the back. This construction cantilevers out and is supported at either side and at the back. With this arrangement it was not necessary to have a deep beam spanning right across, near the balcony front.

There are other uses for skin structures, but time does not permit me to deal with them all here. To these belong practically all constructions that are not in one plane, e.g., reservoirs, silos, bunkers, staircases, water-towers and cooling towers, etc.

All these illustrations are intended to give an idea of what can be done in the future to construct in space. Planning can be influenced by construction. Buildings are generally planned with an axis because normally the structure requires this.

It is probable that during the next generation or so, one will review these buildings and ask whether the function really requires an axis. For example, is such an axis required in a theatre? One might come to the remarkable conclusion that it is not. It is merely the structure which guides us in this direction.

With space frame and skin structures the architect need not consider this and planning can, therefore, start from an entirely different aspect. The open theatres built by the Greeks looked entirely different in plan from the theatres built later which had roofs over them. This indicates clearly that the need to have a construction to carry the roof influenced the planning. I would like to emphasise that planning can be influenced by construction.

In conclusion, I would just like to touch on one type of construction that I think is a distinct possibility for the future. The constructions dealt with here are not applicable to ordinary floors and flat roofs. This development may come, however, and in the future it will be possible to have thin slabs spanning large distances. This will be done by means of prestressing, although not prestressing as we know at the moment.

To give an instance of what will become possible, take an ordinary round bowl and place a towel over it. The towel could not carry any load, but stretch the towel tightly at first, and hold it firmly in position. It could then carry certain loads, although it is the same towel.

Nothing of this nature is being constructed at the moment, but for my own amusement I have calculated that in this way, if saving in weight is extremely important, it should be possible, although not economical at present, to span a 1 in. slab over an area of 20 ft. by 20 ft. without supports. I am not putting this forward as a definite recommendation but merely as a pointer for the future.

Stressed skin construction opens up such tremendous possibilities for the architect, and gives almost complete freedom of planning. Prestressing will be a further development, and I feel that there is great progress still to come in this field.

To conclude, I would like to say that it was a very great task to collect together all the information for this lecture, and I should like to thank Mr. Frank Newby for his assistance in this as it was a task that I could not alone have done in time.

DISCUSSION

Mr. G. Grenfell Baines [4]: Tonight's lecture has made me realise that had I been able to engage the services of Mr. Samuely as consulting engineer during the black and still memorable occasions when I wrestled with the structures papers in the Institute examinations, I have little doubt that the final issues would not have been surrounded by so much doubt.

Having scraped through so long ago as to want to forget the time and details, and having acquired a practice, I do ask Mr. Samuely to co-operate with us in the cause of structural purity in our daily architecture. Not only tonight but on all previous occasions when Mr. Samuely has come to the Institute to talk to us in simple words about structure and architecture, we have, as it were, been treated to his services as a consulting engineer—no ordinary engineer either, but one who has an immediate and ready understanding of architectural problems in all their main aspects.

I regret to confess that when first I heard of the term 'space frame', it had much the same effect on me as, say, 'spatial relationship' or 'interpenetration'.

For to me space is something that occurs between two or more surfaces or two or more worlds, and any space frame might necessarily be one which occupied space between surfaces. This, as far as I could see on looking at the maze of members in a steel roof in a railway station or a workshop, seemed to be just what we had been doing for a long time anyway. Of course, at that time I had not worked with Mr. Samuely or breathed the intoxicating atmosphere of the South Bank.

However, I did not begin to see light until in my own mind I called these things 'skin frames'. As skin frames I saw that a profound change could take place not only in the character of our spaces but of the surrounding surfaces. No longer were spaces filled and surfaces enriched with the inevitable by-products of the act of building construction—beams, ties, pillars, and so on. In the spaces there was nothing, while the surfaces were either sweepingly plain in the case of shell construction or delicately patterned by intricate lattices.

One immediate and not perhaps unnatural reaction is to spice these open spaces with some suspended object. I do not know whether Mr. Samuely would accept the lamella roof of the Lion and Unicorn as a skin frame or not, but I would certainly accept Goodden and Russell's doves as a consummately delicate and fragrant spicing of that particular space. Hanging things in space is, of course, not new; to quote only one example, chandeliers have at times enriched spaces created in other forms of construction. But the exceeding openness of spaces in these newer structures seems not only to invite us to more exciting and probably more dangerous æsthetic adventures in grouping spaces, but in suspending things within them.

We have seen what effect the stressed skin principle may have on the æsthetics of car and plane design—coupled, of course,

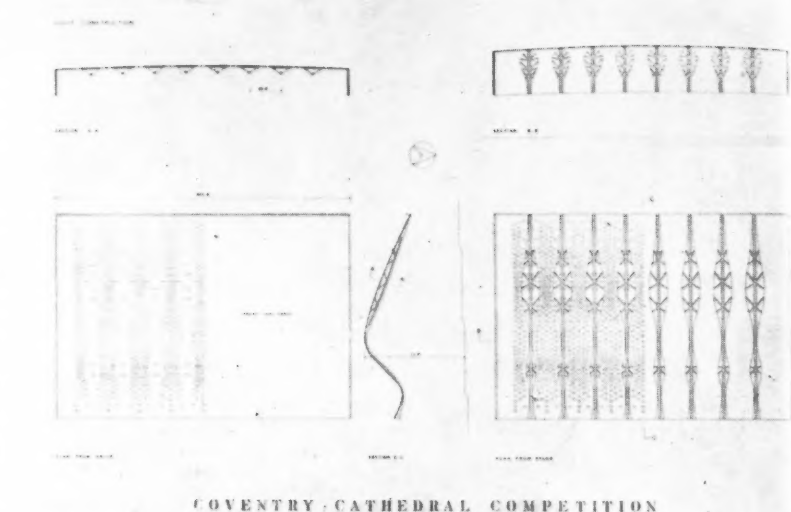


Fig. 21: Design of roof submitted by Arcon in the Coventry Cathedral Competition

with developments in metal pressing and forming techniques. Summed up, it may be described as streamlining, while generally the effect is towards the dynamic and away from the static; rightly so in cars and planes; but in buildings?—I wonder. Architecture should not be amorphous and must always be articulate.

If I may risk a further confession of ignorance, I would ask Mr. Samuely whether he thinks that the construction of Gothic architecture, particularly fan vaulting, has any remote relationship to the matters under discussion.

Mr. Edward D. Mills [F]: I have listened with a great deal of interest and some wonder to Mr. Samuely's lecture, and I look forward to seeing it printed in the JOURNAL, when I shall have an opportunity of reading it half a dozen times so that I can assimilate all the information and suggestions that Mr. Samuely has put forward. I feel that this is, in fact, the sort of lecture that we should like to see published in book form (perhaps Mr. Samuely is working on that idea).

Mr. Samuely has shown us very well that most of the technical and structural problems that we come up against in our normal practice can be solved—by Mr. Samuely, at any rate—with an amazing measure of ease. Unfortunately the æsthetic problems are not being solved nearly so well, and the architect has got a very big responsibility in solving the problem of treating these new techniques in a satisfactory æsthetic manner.

First, are there any peculiar or particular problems in longer span structures using a space frame or a stressed skin construction in relation to thermal expansion? Is that a real problem, and if so, how is it dealt with?

Secondly, today we are being forced to economise in steel, and I am assuming that the systems and constructions that have been illustrated tonight are, in fact, far

more economical in the use of steel than the more traditional forms of construction.

This brings me to my third point, which is a very real one for most of us. When we try in our very simple and elementary way to use something a little out of the ordinary we are usually informed very quickly by somebody that it is going to cost ten times as much. Out it goes, and in its place we have the large steel beam and the big steel stanchion with supports all over the place. Can Mr. Samuely give us some information on that point? I know that the stock answer, if he will forgive me for saying so, is that the cost of the extra labour involved in making the job is counterbalanced by the saving in tonnage of steel.

Finally, Mr. Baines mentioned the problem of people hanging unfortunate things in pleasant spaces. I feel that there is the problem also in some of these light frame and space structures of corrosion and protection for the very many light steel members. Has that in fact been a problem in some cases, and is it one that is liable to create considerable maintenance costs?

Mr. T. O. Lazarides: I have been very much impressed by Mr. Samuely's lecture, and I feel that, as he mentioned, a few hundred years hence the present time may be regarded as having been one of evolution.

There are a few matters which should be mentioned in the discussion. It is essential to have an early collaboration between the designing architect and the designing engineer, the reason being as follows: the analyses of all these structures are statically indeterminate to a very high degree. We are only beginning to know how to tackle the problems involved, and there are several snags which are not quite apparent. For example, one of the main advantages of highly redundant structures is that they are so very cheap. They are cheap because if the stresses reach high values at some points, the rest of the structure helps, and

the stresses are resisted; so that although the stresses at some points may exceed the nominal stated limits, the collapse load of the structure is far larger.

However, in some cases—and this depends entirely on the space configuration—there are structures that have a tendency to ‘unbutton’ themselves. If one point goes, all the rest go; just as, if one pulls at a waistcoat, if one button goes all the rest go.

With regard to star beams, I have been analysing a few star beams recently, and I have come to the conclusion that unless they are filtered, unless they are made non-plane—in other words, unless they are made into a space structure—they are a very uneconomical kind of structure.

In all these structures it is a very moot point which part carries which. We have been shown beams with slabs and told that the beams are carried by the slabs—and vice versa. This is very often true; but again, it really requires an early collaboration between the architect and engineer.

There is a further reason for this collaboration, and that is the advent of prestressing. In a prestressed structure you create in advance a system of forces to counter-balance some of the effects of the loads. Up to now structures have been designed to resist loads, and prestressed structures in most cases—well, they are structures held together by the prestress. The prestress resists the load. It would be obviously very much cheaper—there could be a lighter structure, a more functional one—if the prestress were used not to resist the forces but to create forces.

Mr. F. J. Samuely: The Lion and Unicorn is, of course, a space frame just as the others I have shown, and it has—should we say?—the merits of the space frame.

With regard to Gothic buildings, I mentioned that during the Middle Ages there were certain standard vaults. Some of them were Gothic vaults. Of course, we have got to face the fact that during the Middle Ages, and even to the beginning of the present time, people did not have the opportunities which we have today with steel, reinforced concrete, aluminium and timber.

Mr. Mills mentioned the aesthetic problems, and I wholeheartedly agree with what he said. One of the reasons I have been keen to give this lecture is that I feel that here is something which the engineers have treated up to a point, but which has not yet had architectural treatment.

With reference to Mr. Mills’ third question, I can say that I have definite experience of this. Contractors will frequently try to raise the cost of an unusual construction although they are not so likely to do this when they are in competition. The situation in this respect has definitely improved during the last few years.

It needs considerable perseverance, however, to overcome prejudices against modern construction, but if the architect and the engineer are ready to stand by their ideas, I usually find that one can be successful in the end. I think I can show Mr. Mills several non-traditional constructions which are no more expensive, and sometimes cheaper, than traditional ones.

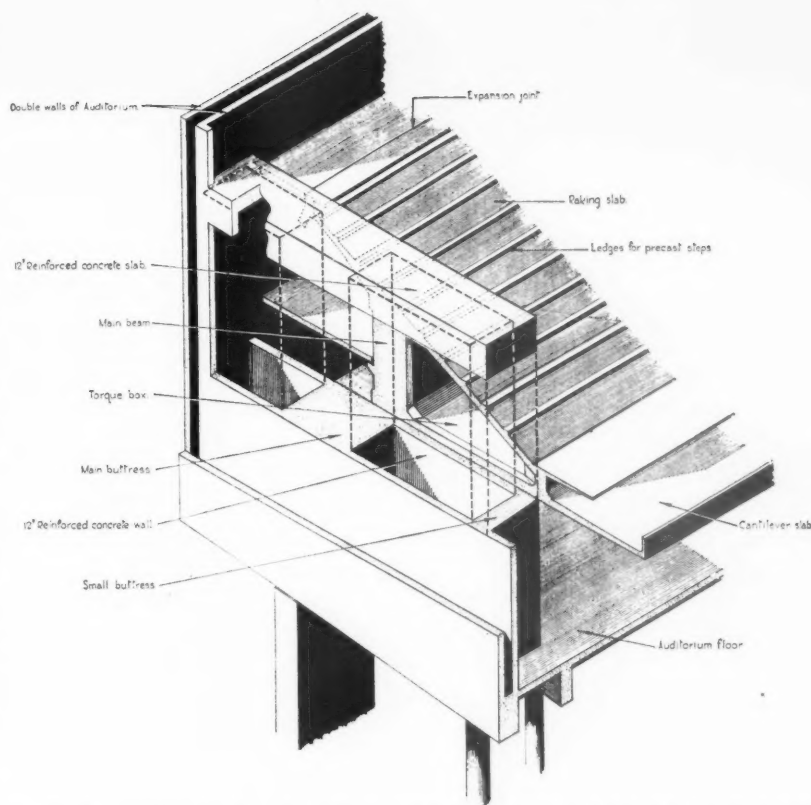


Fig. 22: Construction of gallery, Royal Festival Hall. Robert Matthew [A] Architect to the L.C.C.

On the question of economy of steel, that is, of course, a passing phase, because I hope that we shall not have to economise in the use of steel for ever and for ever. However, it is quite possible to apply the same sort of remedies which we have otherwise to skin structures; in other words, unless the weight is an important item, a reinforced concrete skin structure will use less steel than a steel skin structure; a prestressed concrete skin structure will use still less steel; and it is quite possible to use them. For instance, several hangars on the shell principle have been prestressed. There are all sorts of possibilities. On the other hand, one has to be careful because sometimes a steel structure uses less steel than a reinforced concrete structure if you have a long span, because the mere weight of the concrete produces a need for extra steel to carry it.

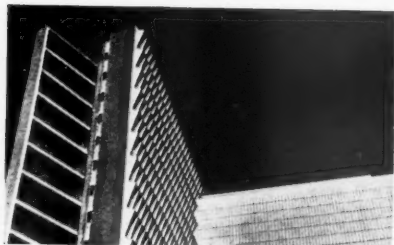
The question of steel saving is an entirely different one from these problems. Steel can be saved with other constructions, and it can be saved with this construction by proper design.

With regard to corrosion, of course protection of the steel is required. If you replace these steel constructions by skin structures of steel, you have not solved the problem of corrosion; you still have to protect the steel. On the other hand, if the skin structure is of concrete, then there is no corrosion problem.

To deal with Mr. Lazarides’ remarks, I think that collaboration between the architect and the engineer is a matter of course, and that is why I did not mention it. The birdcage structure was perfectly indeterminate and would not have collapsed if somebody had come with a saw and cut a few members, and perhaps quite a lot—probably more than an ordinary bridge would stand. I always feel that suspension bridges particularly are very susceptible to being sabotaged! I must confess that I had that question raised with regard to the Skylon. It was said that if one of the three main cables of the Skylon were to be destroyed, of course the Skylon would collapse—to which I could only reply that normally it was not in human nature to go and do that sort of thing!

I do not quite agree with Mr. Lazarides regarding star beams. Obviously one has to consider many things. I think a skin structure is very often cheaper than a star beam, but if you compare star beams with ordinary steel joints over a given area, you will probably find that the star beam can be quite cheap and economical.

I did not mention prestressed construction particularly in this connection because I did not want to complicate the issue. Prestressed construction can be used in connection with all such buildings as I have mentioned; but it is a different problem altogether.



Model of a hospital. Architect: Chessa

Selections from the Exhibition of Italian Contemporary Architecture

THE SPRING EXHIBITION at the R.I.B.A. is to be opened by H.E. The Italian Ambassador at a private view on Friday 21 March. It will be open to the public from 24 March until 30 April (except from 11 to 15 April inclusive, when it will be closed for the Easter Holidays) from 10 a.m. to 7 p.m., Saturdays 10 a.m. to 5 p.m.

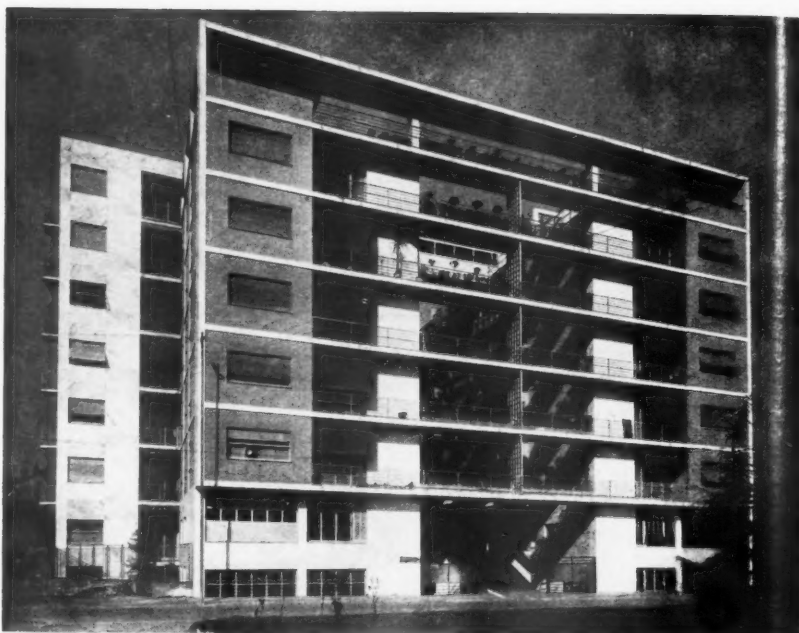
This is the first exhibition of Italian modern architecture to be shown in London; it has been prepared by the C.I.A.M. group of architects in Milan, and is sponsored by the Italian Institute. It consists of fifty panels, covering the period 1930 to 1951.

The exhibition is approximately chronological, though the work of each architect or partnership is grouped together. The illustrations reproduced on these two pages unfortunately are not fully representative; they have been taken from a small collection of photographs sent in advance of the exhibition.

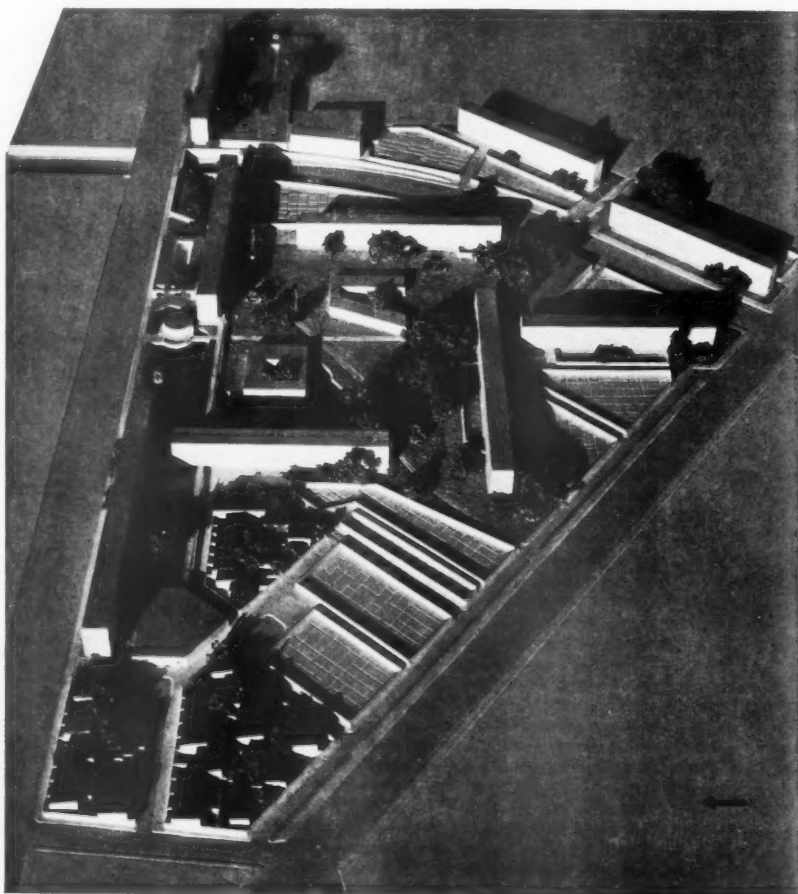
A handbook is being prepared by the Italian Institute in which is an introduction by the President, R.I.B.A., and an article by Mr. R. Furneaux Jordan [F]. After being shown in London, the exhibition is to tour various centres in the United Kingdom.

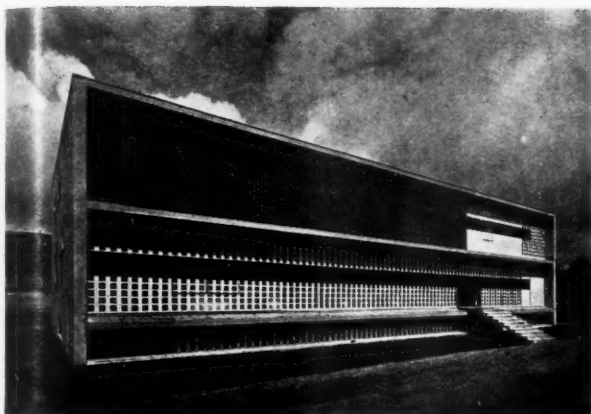


Right: Model of Ina-Casa scheme, Milan. Architects: Figini, Pallini and Ponti. Above: Block of flats. Architects: Magnaghi and Terzaghi



Casa-Rustici, Milan. 1934. Architect: Pietro Lingeri

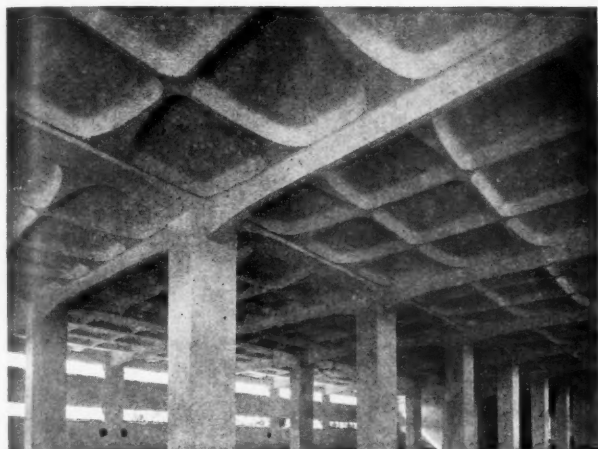




Anti-tubercular clinic. Alessandria. 1937-38. Architect: Ignazio Gardella



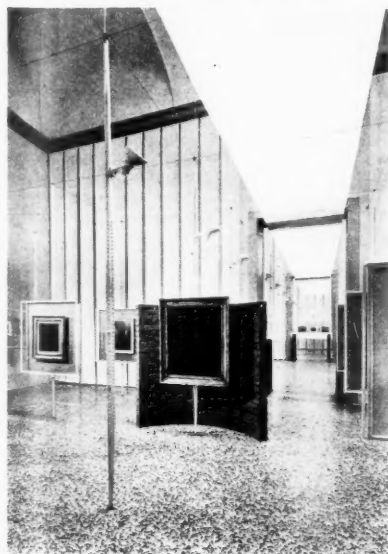
Swimming pool in Monza. Architect: Giulio Minoletti



R.C. floor with secondary beams designed in accordance with the bending moments. Engineer: P. L. Nervi



Five-storey flats at Sesto San Giovanni, Milan. Architect: Giancarlo de Carlo



Exhibition of pictures by Scipione at Milan. 1942. Architect: Franco Albini



Block of offices and flats. Architect: G. Samona

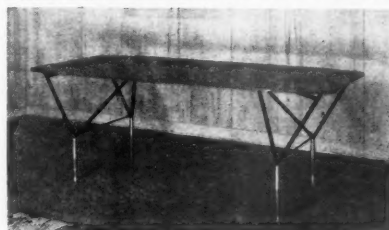
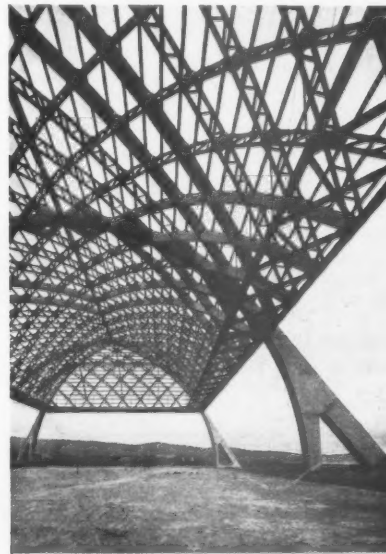


Table in mahogany ply with anodized aluminium feet. Architect: Carlo de Carli



Reinforced concrete skeleton of hangar near Rome. Architect and Engineer: P. L. Nervi

Reconstruction of the Free Trade Hall, Manchester

City Architect:

Leonard C. Howitt, B.Arch(L'pool),
Dip.T.P. (Manchester), M.T.P.I. [F]

'THERE IS nothing cardboard-like in this hall,' said Professor Reilly of the third Free Trade Hall. He was referring to the vigour and great scale of the Palladian façades designed by Edward Walters in 1856. The walls did not merely look strong, they were indeed strong enough to withstand the otherwise complete destruction of the hall by bombs in December 1940. Fire severely damaged some of their external stone facings, but enough remained to justify their retention and repair.

This is the fourth Free Trade Hall and it stands on an historical site. It was here, on St. Peter's Field, that the 'Peterloo massacre' occurred in 1819, an event commemorated in the present hall by a mural painting in the foyer leading to the stalls. Richard Cobden gave a piece of the land to the Anti-Corn Law League who erected a simple wooden pavilion on it in 1839. The League also erected a second building—of brick—three years later; this lasted until 1855 when the 'Manchester Public Hall Company' commissioned Edward Walters to design the third hall in the 'Lombard-Venetian style' at a cost of £40,000.

These successive halls have been a part of English history as well as of Manchester life. Bright, Cobden, Peel, Gladstone, Disraeli, Chamberlain, Balfour, Lloyd George, Winston Churchill and many other statesmen have addressed meetings there; Dickens gave many readings from his works; Emerson, Henry M. Stanley, R. F. Scott and Nansen made speeches in them. Famous singers and musicians who have contributed to the musical life of Manchester—always extremely vigorous—are too numerous to mention, but Sir Charles Hallé, founder of the Hallé orchestra, has a special place in Manchester life and the tradition he created was worthily upheld by his successors Hans Richter, Sir Thomas Beecham, Sir Hamilton Harty, Sir Malcolm Sargent and now Sir John Barbirolli.

There could be no question of rebuilding the interior of the old hall in its original form. Not only have standards in such matters as circulatory space and exits advanced since 1856, but acoustics now demands new forms and surfaces, broadcasting and television facilities are an important new requirement and the purposes to which a public hall are put have increased in number. The new hall has been designed to meet the requirements of public meetings



At a concert during the opening festival of music. Sir John Barbirolli conducting the Hallé Orchestra and Choir in a performance of Beethoven's Ninth (Choral) Symphony

and conferences, orchestral and choral concerts, exhibitions and banquets, dances and cinema performances. Perhaps the dominant requirements have been those of music. The musical tradition of the hall and the acoustic design of the new one are discussed in the article by Mr. Hope Bagenal [F], the acoustic consultant, on pages 180-182.

Planning. Several possible alternative ways of placing the new halls inside the old shell were considered but, in the end, Walters' arrangement proved the most satisfactory, although there had to be increased seating capacity. The platform had to accommodate a symphony orchestra of 100 or, alternatively, a choir of 286, together with an orchestra of 60 to 70 players, the latter with an apron stage.

The floor of the old hall was 14 ft. above the entrance and over a brick-vaulted warehouse. The new hall is now at street level, but a basement of sufficient height has been excavated to house an artistes' foyer with bar, rooms for the orchestra, chorus and soloists, a music library, a piano store, staff rooms, chair stores and the heating and ventilating plant. The conductor's room, B.B.C. recording and commentary rooms are on upper floors, the last having an observation window over the platform.

The total capacity of the large hall is 2,900 in public meetings and 2,570 in orchestral concerts. The ground floor has a slope of 1 ft. 6 in. in its total length, and it provides seats for 1,231. These can be

dissembled in units of three or four seats and can be stacked in the chair stores below. The grand circle with its extensions along the side walls of the hall contains 872 fixed seats and the balcony above has 466 seats. The platform is arranged in the usual tiered form and incorporates a piano lift from the air-conditioned piano store beneath.

Over the platform are three sycamore-faced sound reflectors. These incorporate concealed floodlighting for the platform and one set of loudspeakers connected with the public address system and another serving the electronic organ. The floodlighting provides enough light for the reading of music so that secondary lights on the stands are not required. The music stands are similar to those used at the Royal Festival Hall which were designed by Mr. R. H. Matthew [A], Architect to the L.C.C., who gave permission for his design to be adapted and provided details.

The Lesser Free Trade Hall is on the second floor above the main lounge. It seats 425—95 of them in a balcony. It is designed to suit several purposes and the seating on the ground floor is removable to permit dancing, small exhibitions and other functions requiring a cleared floor space. The stage is fully equipped for amateur theatricals and a green room and dressing rooms are provided. There is structural insulation between the two halls to obviate transmission of sound between them. (See detail drawing on page 181.)



General view of the auditorium. The panelling behind the platform is of weathered sycamore with matched figured walnut panels and vertical features of walnut, teak and laurel. The triple sound reflector is sycamore-faced. The coats of arms are in full heraldic colours

Construction. A steel frame has been inserted to carry the balcony and roof. Except where portions of the existing external walls were considered to be sound enough, new 14 in. walls have been built as panels between the stanchions and beams of the steel frame. The old wall between the auditorium and crush hall has been retained up to the level of the lounge floor. This wall is four bricks thick and grillage bases have been placed on it to carry the stanchions on this side of the auditorium. The new elevation to Windmill Street is in golden biscuit-coloured sand-faced bricks with sandstone dressings. Eight projecting piers encasing stanchions are surmounted by figures in Portland stone representing the different activities in the old hall.

The fibrous plaster ceiling, heavily coffered for acoustic reasons, is carried on the lattice steel roof trusses. The roof is of steel decking carried on purlins, insulated with 1 in. of cork and surfaced with bituminous felt.

Finishes. In the large hall the side walls of the ground floor are lined with limed oak panelling and the rear wall with walnut. The panelling behind the platform is a combination of weathered sycamore, figured walnut, teak and laurel; the City coat of arms in the centre being carved in obeche and painted in full heraldic colours.

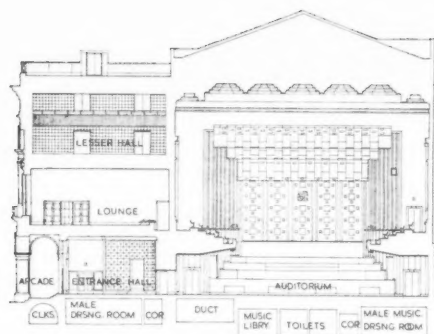
Above the side circle, the main walls have decorative features in fibrous plaster which have the functional purpose of providing acoustically diffusing, reflecting and absorbing surfaces. The upper panels incorporate the coats of arms, in heraldic colours, of bodies prominent in the city and of the neighbouring local authorities.

Equipment. The hall is warmed by a combination of direct heating and the circulation of warmed air. Four Vesta gas-fired boilers are installed, one serving the direct system which consists of convector radiators, two supplying the heater bat-

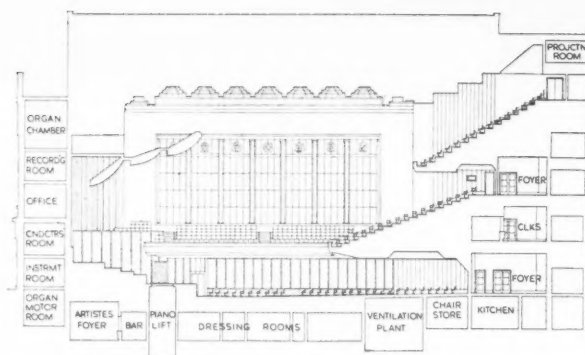
teries of the ventilating system, the fourth acting as stand-by for either service.

In both halls and the public spaces generally, the direct system is designed to offset normal heat losses through the structure and by natural ventilation. This serves to maintain a reasonable temperature when the halls are not in use. In the offices, dressing rooms, etc., the normal amount of direct heating is provided. The whole system is thermostatically controlled.

The ventilating plant for the large hall and foyer provide filtered, washed and warmed air. Two separate extract systems are provided so that 50 per cent of the extracted air can be re-circulated when quick warming up is required and also to economise in fuel when the occupancy is small enough to permit this practice. The Lesser Hall has its own similar ventilating plant and a single extract system. The dressing rooms and other comparatively small rooms are ventilated by a separate plant which filters and washes the air only.



Cross section through the building



Long section through the main auditorium

Other extract systems are provided for the lounge, kitchen and lavatory groups.

The electrical installation is very complete and has several novel features. The main switchboard is in the basement and the lighting switchboard is in a switch room on the ground floor near the large hall; this last controls all lights in the public parts of the building. The lighting throughout is by tungsten lamps. A full emergency lighting installation is provided.

The platform lighting and auditorium lighting are controlled by motorised dimmer banks which can be operated by remote control from three positions, namely, from the side of the platform, from the film projection suite and a control console in the side circle. Sufficient intensity has been allowed for performances and functions to be televised and conduits are provided to house the necessary B.B.C. cabling from mobile equipment which can be parked outside the building. The Lesser Hall has stage lighting controlled from a gallery at the side of the stage. There is a full power equipment, two service lifts from the kitchen and an automatic passenger lift.

Public address systems are installed in both halls with a tie line between the two in the event of the Lesser Hall being required for an overflow audience and the Lounge is equipped with loudspeakers for the same purpose. The dressing rooms in both halls are connected to the respective installations so that artistes may follow the performance on the stage.

The public address system in the large hall incorporates a new type of sound delay which ensures the coincidence of the spoken word with the amplified word issuing from the loud-speakers. This is described in Mr. Bagenal's article, and in a note on page 183.

Other electrical equipment includes an internal automatic telephone system, a bell and lamp indicator signal system and a clock system. An electronic tuning fork tuned to the 'A' note (400 cycles per second) is amplified in the artistes' rooms. Electrical services have been provided in the cinema projection suite, but the projectors have not yet been installed.

A centralised vacuum cleaning plant is placed in the basement.

For fire fighting a system of hose reels is installed. These are connected to the high



View showing the grand circle and balcony

pressure water main and are charged. Two 4 in. dry risers are provided for use by the fire brigade; these have valves and instantaneous type couplings at landings and provision for connection with fire brigade pumps at street level. Suitable extinguishers are provided for special risks such as electrical equipment. An automatic fire-detector system is installed throughout the building, connected to an indicator at a central point which shows the location of any outbreak of fire. The alarm is given by a bell and there is a direct telephone line to the Central Fire Station.

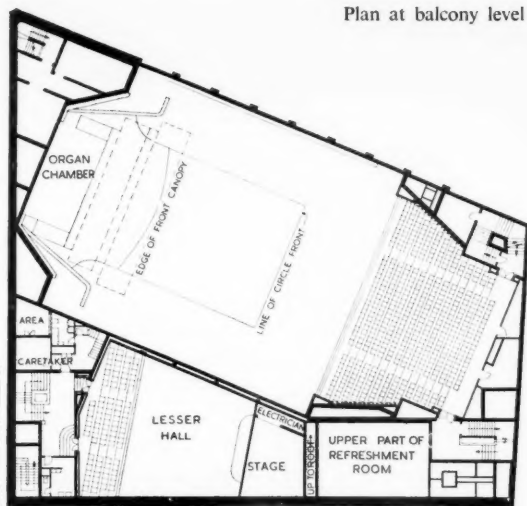
The anticipated cost of the building including furnishing is about £420,000. H.R.H. Princess Margaret laid a stone commemorating the start of the rebuilding on 27 March 1950, and the building was opened by H.M. Queen Elizabeth on 16 November 1951.

Assistant Architects, Consultants, etc. The following senior members of the department's staff worked on the building:

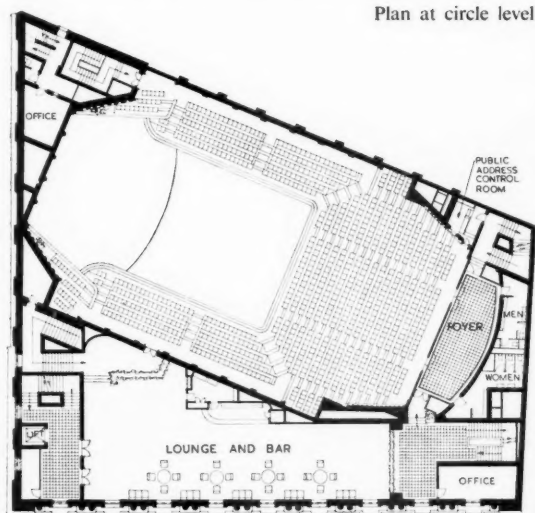
Senior Assistant Architect in charge, H. Hollingworth [A]. Senior Assistant Architect, G. Bardsley, Dip. Arch. (M'chester) [A]. Chief Building Engineer, G. Brooks, M.Inst.Struct. E. Senior Assistant Heating and Ventilating Engineer, J. T. Strogen, A.M.I.H.V.E. Senior Assistant Electrical Engineer, W. Seddon, A.M.I.E.E., A.M.C.T. Assistant Structural Engineer, K. Wallace, A.M.Inst.Struct. E. Chief Quantity Surveyor, T. Kinsolla, F.R.I.C.S., A.I.Arb. Stone figures and mural painting, A. Sherwood Edwards. Clerk of Works, W. H. Sargeant.

Acoustic Consultant, Hope Bagenal, D.C.M. [F]. General Contractors, J. Gerrard and Sons, Ltd. Steelwork Contractors, Redpath, Brown and Co. Ltd.

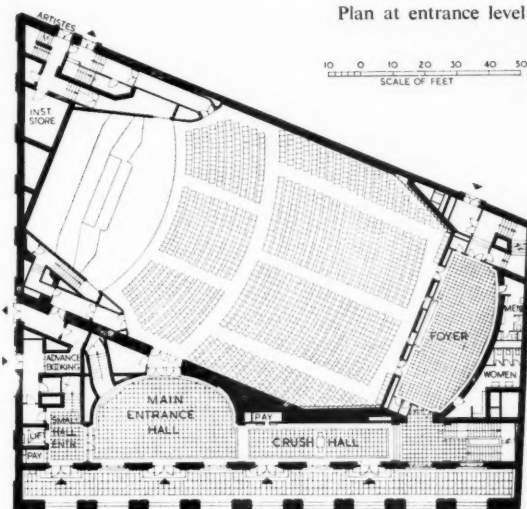
Plan at balcony level



Plan at circle level



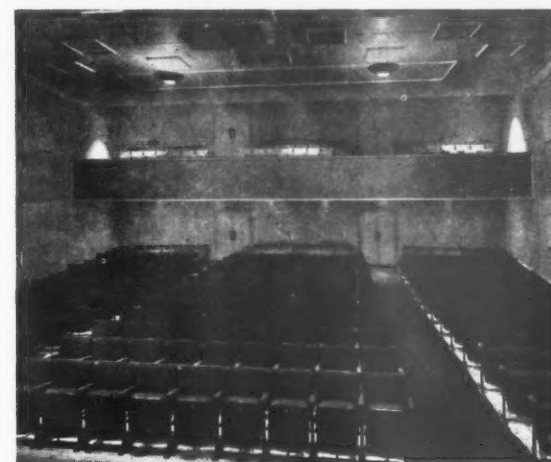
Plan at entrance level



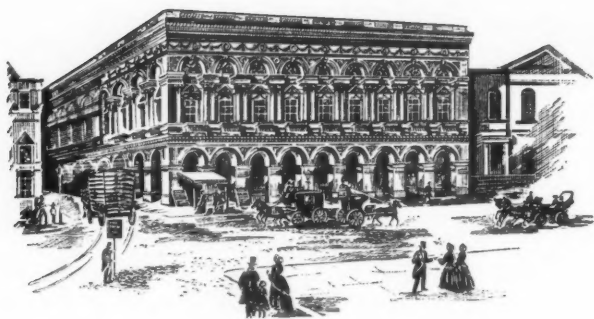
The decorative treatment has been designed to provide acoustically diffusing, reflecting and absorbing surfaces



The Lesser Free Trade Hall, view of proscenium. Loudspeakers are built in behind the grilles



The Lesser Free Trade Hall, from the stage



The Auditorium of the Free Trade Hall

By Hope Bagenal, D.C.M. [F]

This, the fourth building on the plot of land in St. Peter's Field, has a remarkable auditorium tradition. It was in the second building that the first recorded musical event took place in 1843, namely, 'The first great meeting of the Lancashire and Cheshire Workmen's Singing Classes . . . there were 1,500 performers led by Mr. John Hullah, inventor of the System.' (See *Music and the Free Trade Hall*, by J. F. Russell in the Commemorative Brochure, Cloister Press, October 1951). These singing classes were part of a successful effort by the Lancashire and Cheshire Philharmonic Society to get popular music out of the taverns. Mr. Russell points out that choral music and brass band music formed a vital element in the hard lives of the Lancashire cotton operatives. Another interesting factor contributing to musical taste was that after 1848 (year of revolution and suppression) there was a migrating of German capital to Lancashire, seeking free trade, and with it German musical talent and taste. By 1851 the older 'Concerts for the People' had become the 'Monday Evening Concerts' and, though the maximum charge for a seat was still only a shilling, funds were readily available by 1852 for a new and larger building to accommodate increased activities of all kinds. The second building was brought to its close in 1853 with a 'Grand Musical Festival for the People', ending with the Hallelujah Chorus. The third hall, designed by Edward Walters, was opened with four concerts in October 1856. It was a good concert hall and much else besides. It had a longish reverberation and at different times resounded to balls and public banquets, to Gladstone on Irish Disestablishment, to Athenaeum Grand Soirees, to the applause of the boxing ring, to farewell readings by Charles Dickens. Once, in May 1865, the acoustics were altered in an unaccustomed way. It was the memorial service for the death of Abraham Lincoln, and the hall was draped in black. The audience on that occasion had known war and the cotton famine.

Walters' building, holding about 2,200

(see photograph opposite), gained a reputation for good acoustics. The ceiling was flat with marginal coves, the semi-circular rear wall was pierced by boxes and had doors covered with felt. All wall and ceiling surfaces were deeply recessed following the old, useful, 'breaking up' tradition. Cube per seat was about 200 cu. ft., giving a middle pitch reverberation of round about 1.8 sec., hall full. The dancing floor sloped up about 18 in. in the length, giving a slight improvement to rear seats.

When Mr. Howitt and his staff had to provide for a larger audience on the same site, yet retain the lesser hall, it became necessary to increase gallery area in the main hall. This meant shading a large part of the floor area, and also increasing total height to get in another gallery at high level. Could remotest seats at these extremes be made to hear the pianissimo? The speaking voice can be amplified, but the range in music from the very soft to the very loud presents difficulties. To overcome these the platform splay walls were made hard and solid, and the canopy was designed to be hung fairly low, and to have three elements tilted at the right angles. Recently there has been some revolt against canopies, and it has been asked why the canopy profile cannot be part of the shell of the building. The answer is that for concert halls total ceiling height is desirable in order to give volume (and therefore reverberation) but that reflector height above instruments must be limited, and specially where sound has to be sent in under large gallery projections. The advantage of the convex profile is that each element gives a fairly wide coverage and reflects usefully some sound as from different platform positions. The old slight rake of the dancing floor was retained but the rise is of course not enough to allow of a low platform height. The older, high platform tradition is retained with its advantages and disadvantages. Soloists and strings command the floor but tend to screen instruments behind them on the flat, as from front stalls. Gallery seats however do not suffer. A floor reflector was not

part of the design, although it is clearly desirable to keep front stalls, where *ensemble* is poor, as far back as possible.

Echo faults were insured against by maximum diffusion and specially by avoiding curved mirrors. Since rear walls were straight, the risk was taken of omitting absorbents except on parapets. A straight cove helps rear floor seats. The obverse splay narrowing seating at the end of the hall might have handed on reflections back to platform, so were stepped but not made absorbent. Also side wall echo is countered by slotting (over a blanket) the front side wood panels on main walls, thus giving some middle pitch absorption in that position. The ceiling level over stalls was fairly high, 63 ft., and to prevent echo on floor seats the ceiling was coffered to a depth of 3 ft., and in addition marginal coffers were made absorbent. The tops of coffers are in stiff woodwool slab, and movable, so as to be either plastered hard or left absorbent as might prove desirable.

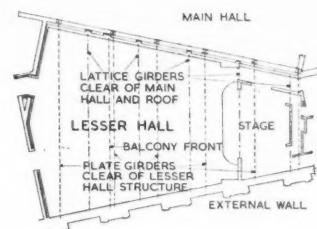
Preliminary calculations showed that the absorption elements contributed inevitably by the very large number of audience would provide more than enough absorption at middle pitch. So carpets were eliminated except for canvas druggett protecting the dance floor. Since bass absorption likewise tends today to be excessive owing to thin linings, much of the wood area was bedded solid, and the fibrous plaster ceiling was thickened as to its ribs. High frequency absorption is represented by a frieze at high level in a fabric. I am not satisfied that this factor should be entirely omitted—too much gloss area tends, in the new halls, to give excess 'brilliance' and exaggerate the brass.

The reverberation-frequency curves by the Building Research Station, recently revised, are given in the diagram opposite. The reverberation period at middle pitch (hall full) is below the optimum for a hall of this size. But the figure is an average of measurements taken in different parts of the hall. To the ear it corresponds more to the impression of tone in floor seats; whereas in the grand circle the impression is of a longer period. The hall gives the impression as of two sets of energy conditions, one above and one below the main gallery line. The flatness of the reverberation-frequency curve illustrates that there is considerable bass absorption. This is probably due to the ceiling. It should be noted that ceiling structure has altered since the war. It tends to improve acoustics for speech but not for music. In spite of difficulties, however, some good musical results have been achieved. There is sufficient loudness in rear seats, considerable flexibility and freedom from echo permitting rapid clean piano playing and very fair tone quality for choral and instrumental music. Also satisfactory conditions are provided for small audiences and for rehearsing and recording.

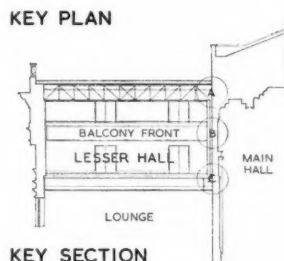
An electrophonic organ, speaking through a number of loudspeaker units at various positions in the canopy, and having a movable console, is being designed and built specially for the hall by the John Compton Organ Company.



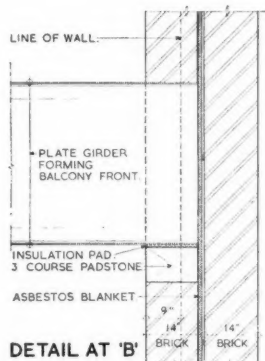
Interior of the third Free Trade Hall, destroyed by bombs in December 1940



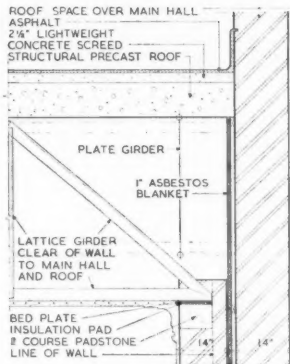
KEY PLAN



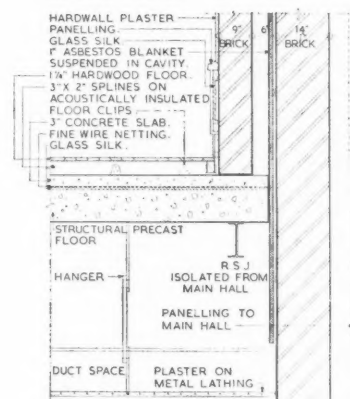
KEY SECTION



DETAIL AT 'B'



DETAIL AT 'A'

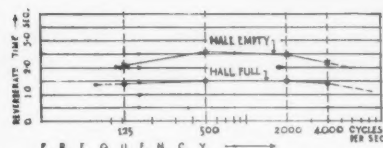


DETAIL AT 'C'

RECONSTRUCTION OF THE FREE TRADE HALL

DETAILS SHOWING SOUND INSULATION BETWEEN MAIN HALL AND LESSER HALL

LEONARD C HOWITT



The measured reverberation-frequency curves

Owing to dimensions, and owing to shading of seats under galleries, it was clear that loudspeakers would be necessary. The system installed was the result of some close collaboration between the Acoustics Section of the Building Research Station and the engineers of the supplying firm, namely, Messrs. E.M.I. Sales and Service, Amplifier Section. The galleries, the side balconies, and platform are covered by a series of 12 in. loudspeakers of the 10 watt type placed at suitable angles in the canopy. The shaded floor seats are supplied by a series at low height placed in the soffit of side balconies and grand circle. Two come under each side balcony and four over rear floor central seats. These units at low height are *delayed* in two steps so that their sounds synchronise with the arrival of sounds from the platform. The first step (under side balconies) has a delay of 50 milli-seconds, the second step (under grand circle) has a delay of 90 milli-seconds. These delay times allow speech from the platform to arrive just *before* the soffit loudspeakers, because it has been proved that that technique appears to give *presence value* to the platform sound, and the mechanical units do not draw attention to themselves to the same degree. The delay mechanism or 'Synchronphase' unit consists of an even running, silent turntable, with suitably arranged recording, reproducing and erasing units. This is placed in the control room at grand circle level where a window commands the platform. The loudspeakers are driven by eight 30-watt amplifiers. A speech filter is fitted to eliminate frequencies below 300 cycles and above 4,000. This increases intelligibility. A large number of microphone points are provided to meet all the various uses of the hall. Provision is also made to receive programmes from a radio receiver, from a Post Office line, or direct from the B.B.C. control room within the building. This delay system in the main hall, though still young, is highly promising and may answer many of our unsolved speech problems in large halls in the future.

The lesser hall was designed to act as a 'little theatre', and at the same time provide for chamber music, and provide a flat floor for dancing. For the sake of music a fore-stage, and a cyclorama reflector, were added to the theatrical stage, in order to get soloists in front of the curtain line, and in order to give some rear wall reflection. A gallery increases the seating to a total of 425. Sound absorbents are placed on the wall above and below the gallery and form a patch treatment on walls and ceiling. Microphone points give facilities for all modern uses of amplification, and the loudspeakers are masked behind grilles in a proscenium reflector (p. 179). The acoustics,



Top left: The entrance hall showing the hide panelling and commemorative tablet unveiled by H.M. the Queen at the opening ceremony on 16 November 1951

Top right: Foyer at rear of stalls showing the Peterloo mural by A. Sherwood Edwards, and the stone laid by H.R.H. Princess Margaret on 27 March 1950

Left: The balustrade of the mezzanine floor which overlooks the promenade lounge

Right: The crush hall which adjoins the arcade on the main front and continues from the main entrance hall

Below: Part of the promenade and lounge with the bar. This is at the level of the grand circle and over the main entrance hall



as far as can be judged, seem to meet all the multifarious uses, and at a recent Mozart concert were described as excellent. Since the lesser hall adjoins the flanking wall of the main hall and is separately let, great care was taken about the sound insulation. Activities in the lesser hall such as hammering on stage floor, or the knocking up of theatrical sets must not travel through structure and be heard in the main hall during an impressive pause in the music. Also there must be no serious tympanic transmission through the flanking wall in either direction. The details of the insulation were carefully worked out by the architectural staff of the City Architect and are illustrated in the figure. The large plate girders below carrying the load, and those above carrying roof slab, are part of the main fabric and therefore not insulated, but between them come a whole system of dissociated cross beams, floating floor slab, heavy partitioning with a cavity absorbent, and dissociated ceiling. An important item in the design was that the lesser hall had its own ventilation system and the party walling between halls was not penetrated at any point. I might add that a rough insulation test gave good results. Provided all doors were closed, loud hammering on the party walling, and on the stage of the lesser hall, could just be detected in the main hall in close proximity to the structure, during complete silence, but not in any seat.



Review of Construction and Materials

This section gives technical and general information. The following bodies deal with specialised branches of research and will willingly answer inquiries.

*The Director, The Building Research Station, Garston, near Watford, Herts.
Telephone: Garston 2246.*

*The Officer-in-charge, The Building Research Station Scottish Laboratory, Thorntonhall, near Glasgow.
Telephone: Busby 1171.*

*The Director, The Forest Products Research Laboratory, Princes Risborough, Bucks.
Telephone: Princes Risborough 101.*

*The Director, The British Standards Institution, 28 Victoria Street, Westminster, S.W.1.
Telephone: Abbey 3333.*

*The Director, The Building Centre, 26 Store Street, Tottenham Court Road, London, W.C.1.
Telephone: Museum 5400 (10 lines).*

*The Director, The Scottish Building Centre, 425-7 Sauchiehall Street, Glasgow, C.2.
Telephone: Douglas 0372.*

Loudspeaker Systems. Systems of speech reinforcement advertise their defects only too clearly. When used to make speech audible in buildings which possess long reverberations, they are little more than a palliative. The most they do is to provide the individual with a loudspeaker near him powerful enough to drown out to some extent the rumbling burble of sounds emanating from other loudspeakers and from multitudinous reflecting surfaces. It is, therefore, pleasant to record the development of a new system which promises a notable improvement and which may well solve the problem of obtaining clearly audible speech in all parts of large halls with long reverberation times.

The new system has been designed by the Building Research Station under the direction of Mr. P. H. Parkin, B.Sc., A.M.I.E.E. One set of equipment is being installed in St. Paul's Cathedral in collaboration with Pamphonic Reproducers, Ltd. Another system has been installed in the new Free Trade Hall in Manchester in collaboration with E.M.I. Ltd. This is described on page 181 in the article by Mr. Hope Bagenal on the acoustics of the Free Trade Hall.

Clear hearing of preachers in St. Paul's Cathedral has always been a serious problem. The cathedral has a reverberation time of 12 seconds (that of the Albert Hall is 4 seconds, of the Royal Festival Hall 2½ seconds) which, together with the long echoes from the dome, plus considerable traffic noise from outside, has hitherto caused a preacher in the pulpit to be almost incomprehensible to all but the few persons in near seats. The existing loudspeaker system gave little more than some mitigation of this defect.

The new system makes use of two recent developments. The first of these is the loudspeaker 'column' which produces a 'pool' or layer of sound about 5 ft. or 6 ft. deep over the floor of the cathedral, thus cutting out interference of echoes from the dome and vaulting. There is a main loudspeaker column beside the pulpit and secondary ones at the nave piers.

The second development is 'time-delay' in the loudspeaker system. This cuts out the interference caused by loudspeakers at

varying distances from the auditor. Speech from the microphone is transmitted to a turntable recorder in the crypt. The speech is recorded magnetically on a circular strip which revolves at constant speed. Pick-ups are situated at varying distances round the perimeter of the revolving disc, each serving a loudspeaker column in the nave with time delay appropriate to the distance of each from the main loudspeaker column at the pulpit. Thus a person seated at the back of the nave receives the sound of the preacher's voice at the time it would take to reach him from the pulpit through the air, and indeed he receives the sound from all the other loudspeakers at the same moment. In addition, by giving the pulpit loudspeaker column an 'advantage' of a hundredth of a second, it is possible to give the auditor the illusion that he is hearing the pulpit loudspeaker column only. When, on the turntable disc, the strip of recorded speech has passed the last pick-up, it passes an eraser, so that the strip continues round ready to receive speech again.

A feature of the sound reproduction system is the introduction of a 'speech filter'. This cuts out very low and very high frequencies, i.e. approximately those below 300 cycles per second and above 4,000; these are mainly responsible for the typical 'boom' and 'hiss' of loudspeakers.

The system was demonstrated recently to the press, and it was obvious that even with the handicap of no congregation to act as absorbent, it caused a preacher to be easily and comfortably audible in all parts of the nave and the dome areas. In the demonstration, the voice of a speaker in the pulpit was transmitted in turn by the new system, the existing system and no amplification at all, so that the improvement was clearly apparent. The B.R.S. scientists also demonstrated the 12 seconds' reverberation of the cathedral interior by indulging in the pastime of firing a pistol—a demonstration which was convincing enough.

Building Research 1950. This report of the Building Research Board records the passing to the D.S.I.R. of the responsibility for economic and sociological research on building that had previously been borne

by the Chief Scientific Adviser's Division of the Ministry of Works. The report notes that the staff, under the new régime, was housed in three separate establishments, and although this might be acceptable as an inevitable temporary measure, it was 'a severe handicap to full integration, for there is no clear line of separation between the different parts of the programme. We look forward, therefore, to the provision of the necessary additional accommodation at Garston as soon as possible'.

In this short note it is not possible to give even the headings of all the items on the research programme, but a few may be mentioned as indicative of the whole. One of the matters taken over by the D.S.I.R. was the scheme to build some 400 houses incorporating different methods of prefabrication, particularly of internal linings and components, and not merely the outward shell, so that full technical and cost studies could be made during erection. As a means of reducing costs the report notes the increased interest shown by builders in the possibilities of mechanical plant as an aid in building operations. The appointment, in 1948, of a Colonial Liaison Officer at the B.R.S. was proving most successful, and it evidently met a real need. A special course for technical officers on leave from the Colonies was held at the Station.

After the general report of the Building Research Board the report of the Director of Building Research follows, in which the progress of work is outlined. In a report on tests with sandwich membranes applied between two porous layers, maintained in a saturated condition, it is stated that the resistance to permeability of a membrane formed with hot bitumen is often a thousand times that of one prepared from an emulsion. In conjunction with the Forest Products Research Laboratory, fungicidal paints for the prevention of the spread of dry rot from infected brickwork were developed, and promising results were obtained. On the protection of steelwork the report quotes an instance where 4½ in. brickwork had been built around and in contact with the stanchions, and had cracked. Investigation revealed rust deposits up to ¾ in. in thickness. 'Proper painting of the steel and the provision of damp-proof membrane between the steel and the brickwork would have prevented the development of these defects'.

Prestressed concrete received much attention, and a method of analysis of the elastic stresses in concrete shell roof structures has been developed. In soil mechanics, model tests were carried out to measure the skin friction and point resistance components making up the bearing capacity of a pile. It was found that in granular soils, such as sands, the skin friction was small compared with the point resistance, whereas in cohesive soils, like clays, the skin friction was the major component, the point resistance being small.

The report is published by H.M.S.O., price 4s. net, the code number being 47-61-0-50.

Practice Notes

Edited by Charles Woodward [A]

IN PARLIAMENT. Town and Country Planning Act (Claims). Asked whether the assessment of claims upon the sum of £300 million set aside under the Town and Country Planning Act 1947 is sufficiently far advanced to enable him to give the House an indication of the probable total of such claims when finally determined, and therefore of the possible scale of payments, the Chancellor of the Exchequer replied: Yes. I am advised that the probable total should be in the region of £345 million to £350 million. It seems probable that the so-called 'near-ripe' classes of claimants, together with some other groups who have been led to expect preferential treatment, will not absorb more than about £100 million. If this proves to be the case, it would leave about £200 million available against the remaining claims of from £245 million to £250 million. (26 February 1952.)

MINISTRY OF HOUSING AND LOCAL GOVERNMENT. Building Licences. Monetary Quota. Circular L.R.L. 1/52, dated 11 February, addressed to housing authorities in the London Region, states that the money available for repair, maintenance, conversion, adaptation and improvement of houses in the London Region remains approximately the same as in 1951.

A redistribution of the monetary quota on a more equitable basis was necessary in the London Region, and a revision has been made.

In fixing each Council's quota for the current year the Circular states that the issue of licences should be made within this amount, but if during the month of January licences were issued in excess of one-twelfth of this amount, the issue of licences for the remainder of the year, based on the revised quota, will not be prejudiced. The Minister would welcome sympathetic consideration being given to applications for licences in respect of conversions.

The need for the utmost economy in the use of steel is emphasised, and jobs requiring steel frames should not be licensed.

Housing Medals 1952. Circular 13/52, dated 8 February, addressed to housing authorities in England, states that schemes competing for the 1952 award for the best designed local authority housing estates should be sent to the Principal Regional Officer not later than the end of March 1952. The awards will be based solely on the architectural merit of the design as suited to individual houses, groups of houses, or dwellings, and upon the general arrangement of the layout and its treatment. The assessment of entries completed in 1951 and eligible for awards in 1952 will not take account of the size or arrangement of the accommodation in plan. This is in view of 'Houses 1952', the Second Supplement to the Housing Manual, 1949.

Awards will be offered in each region outside London for one urban scheme and one rural scheme. In the London Region an award will be offered for a scheme of new development and another for a scheme of reconstruction.

Restriction of Ribbon Development. The Restriction of Ribbon Development (Temporary Development) (End of War Period) Order 1952 (S.I. 1952, No. 167) appointed 1 March 1952 as the end of the 'present war period' for the purposes of the Restriction of Ribbon Development (Temporary Provisions) Act 1943.

The effect of the Act of 1943 was to provide for exemption from enforcement action, during the 'present war period', of development carried out (or retained) without consent under the Ribbon Development Act of 1935. This Act was repealed by the 1947 Planning Act, but Regulations made in 1948 provided for development temporarily protected by the 1943 Act to be treated as if it were the subject of planning permission granted for a limited period. The effect of the above Order is to terminate this limited period and the works or use therefore become liable to enforcement under Section 76 (2) of the 1947 Act, unless any development was originally carried out with planning permission.

Circular 11/52, dated 15 February, addressed to local authorities in England and Wales, states that it will now be for the local planning authority to decide on the merits of each case whether enforcement action should be taken or whether planning permission should be granted for a further limited period or in perpetuity. No doubt due regard will be had to the need for the retention of buildings and works which are still serving a useful purpose.

Houses to be Built Under Licence. In Circular 21/42, dated 12 February, addressed to housing authorities in England, the Minister has made the following five suggestions to help local authorities to speed the building of houses under licence now that they have wider discretion:

1. Private building should be allowed on the many small plots which are not big enough for municipal housing schemes, but where services are already available and houses can go up quickly.
2. Local authorities should avoid using for their own housing schemes sites owned by builders.
3. Block licences may be issued to builders who, for speed and economy, wish to build a number of houses as a single job, but always with the proviso that when completed the houses should go, and be seen to go, to persons approved by the local authority.
4. Consideration should be given to granting licences for the building of small houses to people who now live in houses too big for them, so that the larger houses may become available for family use.
5. Advantage should be taken of the good building weather of the coming months by granting licences now, instead of spreading

them over the year, provided that this will not dislocate the local building programme.

Requisitioned Premises. Circular 23/52, dated 19 February, addressed to housing authorities in England, refers to premises requisitioned for the accommodation of inadequately housed families. These arrangements were made to meet war-time conditions and have been continued at the expense of the Exchequer to assist local authorities in post-war difficulties.

The Circular states that a term must now be put to the financial responsibility of the Government for these arrangements, which must be replaced, so far as accommodation continues to be required, by services provided under the normal machinery of local government. The Minister recognises that in districts where any substantial number of houses are held under requisition the existing arrangements can be brought to an end only gradually, and he is requesting Local Government Associations to appoint representatives to a Working Party with officers of the Department to make recommendations to him on this question.

A further Circular will be issued when the Working Party have reported, but this advance notice is given in order that any arrangements found practicable for bringing to an end or diminishing the problem in particular districts may be considered without delay.

MINISTRY OF EDUCATION. Building Programme for 1952. Circular 245, dated 4 February, addressed to Local Education Authorities, deals in detail with the programme for 1952. The statutory period for school attendance will not be changed and the expansion of technical education will not be abandoned.

Projects now under construction to the value of about £120,000,000 must be completed and will provide 400,000 school places and accommodation costing about £15,000,000 for technical education. As these projects will use up almost all steel available in the first half of 1952, leaving very little for new work to be started during that period, the 1951-52 programme will now be closed, and a revised programme for 1952-53 will be issued compiled from the balance of the 1951-52 and the existing 1952-53 programmes. New and, where possible, existing secondary schools will have to house more classes than the number for which the school is designed.

In further education the new programmes are to be restricted to facilities for the more essential industries such as mining, engineering, textiles and building. There will be no new building for courses such as commerce, catering, art and printing. Authorities are also asked to reduce their building programmes by switching existing accommodation from less essential purposes even if this means closing down existing courses. With certain exceptions, work at community centres, village halls, youth clubs and similar institutions must be restricted to maintenance, and a ban on the development of playing

fields (other than for new schools) will be imposed on 1 July.

Shortage of steel is the main factor limiting educational building in 1952, and various measures are suggested in the Circular to encourage Authorities to use steel even more economically than at present.

Administrative Memorandum No. 413, dated 27 February 1952, has been issued by the Ministry, so that Local Education Authorities have early information about the degree of steel economy necessary to enable future school building programmes to be started on time, and to allow local discretion in the use of steel. The bulk allocation scheme described in the memorandum will come into operation from Period III, 1952, onwards.

The Appendix attached to the memorandum gives notes on the issue of I and S sub-authorisations of manufactured steel. The documents are too long to reproduce in these Notes, but members concerned with school building can possibly obtain copies from the Ministry.

DAYWORK CHARGES. Heating and Ventilating Engineers. A new agreement has been reached between the Royal Institution of Chartered Surveyors and the Association of Heating, Ventilating and Domestic Engineering Employers on day-work rates. The agreement runs from 1 January to 31 December 1952, and is the same as that in force up to 31 December 1951 except that the percentage rates on labour are increased by 2½ per cent. Copies of the new agreement are obtainable on application to the Royal Institution, price 3d.

APPOINTMENT OF QUANTITY SURVEYORS. Form of Agreement. The model of agreement prepared in 1934 by the Quantity Surveyors' Committee of the R.I.C.S. has been revised in consultation with the solicitor. The revised model form is for the appointment of a quantity surveyor for all types of employment, including appointments by local authorities and public bodies. Copies are obtainable on application to the R.I.C.S., price 1s. each.

RATES OF WAGES. The new hourly rates of wages as decided by the National Joint Council for the Building Industry as from 4 February last are as set out in the table below. Consequential adjustments

will be required in the rates of wages of apprentices and young male labourers. Women operatives, whether engaged on craft processes or other processes, are entitled to an increase of 1½d. per hour.

LAW CASE. *Young v. Buckles.* A report of this case was included in Practice Notes in the February JOURNAL. The case is now fully reported in the *All England Law Reports*, 1952, vol. 1, part 7, at page 354.

The case turned on the interpretation of paragraph (4) of Defence Regulation 56A, and the headnote to the report is as follows:

'In any case, services as an architect such as those rendered by the plaintiff were not "services used for the purpose of a building operation" within the meaning of Defence (General) Regulations, reg. 56A, and, therefore, fees payable to architects or other professional persons in connection with building operations were not included in the amount of expenditure permitted by the licence.'

In the course of the judgments in the Court of Appeal it was said that 'it is easy to imagine many cases in which a building owner may take professional advice in regard to work which he contemplates carrying out, for which services, in the ordinary way, he would be liable to pay the proper professional fees, and it would be surprising if the Defence (General) Regulations had the effect that professional charges of that character which a building owner had rendered himself liable to pay were deemed to be covered by the amount of any licence granted, so that officials of the Ministry of Works were in a position to say how much was to be paid to lawyers, surveyors, and other professional men for the services they had rendered. Yet such is the contention of the defendant in this case.'

It was further pointed out that 'the application form for a licence (CL1136A) contains no reference at all to any surveyor's fees payable by the building owner. The direction in paragraph 7 of the application thus, on the face of it, is not designed to elicit from the applicant anything more than the cost of the proposed work, including the value of all materials, new or second-hand, and labour.'

It will not now be open to a building owner to decline to pay professional fees on the ground that by so doing the amount

of a building licence would be exceeded and therefore the payment would be illegal. Illegality would only attach to excess expenditure over the licensed amount, and a contract would be illegal in so far as it involves a claim for a payment of a larger figure than that for which the licence was granted. It follows, therefore, that professional fees on the excess over the licensed amount would not be recoverable, and this emphasises the importance of obtaining a supplementary licence before the amount of the original licence has been exceeded.

Book Reviews

System of Tables for quick and accurate solving of any continuous beam, by A. P. Skayannis. 2nd ed. 9½ in. 43 pp. incl. tables + double pl. text diag. Athens; Lond.: Lange, Maxwell & Springer. 1949. £1 1s.

There seems to be no doubt that these tables are of real value to engineers engaged in designing reinforced concrete structures and to all in fact who are concerned with solving the varied problems of continuous beams.

Moderne Küchen, by Erika Brödner. 9½ in. 100 pp. incl. pls. and pp. of illus. text illus. Munich: Hermann Rinn. [c. 1950.] DM 9.50.

The problem of kitchen design is thoroughly analysed from the point of view of the needs of the family without domestic help. Many solutions are shown, selected from recent examples of successful kitchen planning in Germany, Switzerland, France, England, Holland, Sweden and America. The adaptation of old and unsuitable premises is also considered. The book is very generously illustrated with photographs, floor plans, diagrams and sketches, and it is unnecessary to have a complete command of German to understand the author's meaning. The publishers have aimed their book at a threefold target—the housewife, the architect and the manufacturer of kitchen equipment. J.C.P.

Structural Theory, by Hale Sutherland and Harry Lake Bowman. 4th ed. 9 in. xiv + 394 pp. text diag. New York: John Wiley; Lond.: Chapman & Hall. 1950. £2.

Although largely written for undergraduates taking the normal course at American engineering schools, *Structural Theory* covers rather more ground than is essential for this purpose. It can therefore be used by the fully qualified as a reference source. Both authors have held senior instructors' posts in structural engineering at M.I.T., and previous editions of this book have earned wide popularity with teachers on the other side of the Atlantic. It has now been thoroughly revised.

Southill: A Regency House, by A. E. Richardson [and others]. 9½ in. viii + 71 + 4 pp. + front. + 90 pls. Faber and Faber. 1951. £1 5s.

Southill lies a few miles south-west of Biggleswade in Bedfordshire. It is not, as

HOURLY RATES OF WAGES FOR THE BUILDING INDUSTRY AS FROM
4 FEBRUARY 1952

	CRAFTSMEN	LABOURERS
	s. d.	s. d.
London (within 12 miles circle)	3 6	3 0½
London (12-15 miles)	3 5½	3 0
Grade 'A' Districts	3 4½	2 11
Grade 'A1' Districts	3 4	2 10½
Grade 'A2' Districts	3 3½	2 10
Grade 'A3' Districts	3 3	2 9½
Liverpool Special	3 6	3 0½

country houses go, inordinately large, nor does it make any great display of architectural ostentation. Yet behind its walls of mellow golden stone is to be found a remarkable and almost unaltered example of the artistic achievement of the last decade of the 18th century—that period which is frequently called Regency, though in fact the Regency Bill was not passed until 1811.

Two men in particular were responsible for the unique character of Southill: Samuel Whitbread, who inherited the property a year after his father had purchased it; and Henry Holland, the architect, who was entrusted with the rebuilding and decoration of the house from 1795 onwards. Mr. Whitbread, who managed to combine the running of his famous brewery with the interests of a country gentleman and the representation of Bedford in the House of Commons, was a leading figure in the Whig coterie in which most of Henry Holland's clients were to be found. Brooks's Club, the favourite rendezvous of prominent Whigs, was indeed Holland's first important building, and through this connection he became strongly influenced by the party's gallic sympathies. There is evidence that somewhere in the early 1790's he himself visited Paris to study its architecture at first hand, and it is therefore not surprising that French neo-classicism should be apparent in the internal details of Southill, though his handling of space and structural forms remains essentially English. The house provides ample evidence of his genius in blending the elements of classical antiquity with the taste and requirements of his own time, as can at once be seen from the finely illustrated record of Southill which has recently been produced.

For this the letterpress has been assembled by a distinguished team of experts, including Professor A. E. Richardson, who writes on the architectural history of the house, and Mr. F. J. B. Watson, who deals with its furniture and decoration. Mr. Whitbread's wide range of interests is reflected in the collections which he made of paintings and sculpture, and in his library, on which chapters have been contributed by Mr. Oliver Millar, Mrs. Geoffrey Webb, and Mr. A. N. L. Munby.

DOROTHY STROUD

Looking for History in British Churches, by Mary D. Anderson (Mrs. Trenchard Cox). 8½ in. xv + 328 pp. + xxiv pls. + double pl. + (map), text illus. John Murray. 1951. £1 5s.

Miss Anderson is already known for her earlier works on iconographical subjects—*The Medieval Carver* (1935), *Animal Carvings in British Churches* (1938), and *Design for a Journey* (1940). The present work is not unlike the last in content—and, it may fairly be added, in rhetorical vagueness in title and chapter-headings. It is a difficult work to analyse or study and therefore to review, though absorbing to read or browse through with unlimited leisure, being an immense storehouse of extraneous particulars relating to churches, probably

neither individually treated nor assembled before. The two 'parts'—'Traces of the Past' and 'Traces of the Passers-by'—seem to summarise in order an historical and a social treatise. Thus, Chapters 1-12 stretch from the pre-Christian site to the Norman period, with 13 and 14 as excursions; in the second part, 15 to 26 cover (to shorten the titles) landmarks, kings, singers, players, pilgrims, crusaders, malefactors, guilds, mariners, soldiers, squires, and lastly the church's ministrations to ordinary folk. Most of these chapters deal chiefly with the mediæval period.

The three dozen illustrations, chiefly of architectural and craftsmanship details chosen for what they portray, are mostly plates grouped together; there is a clear, but by no means exhaustive, double-plate sketch map.

The book concludes lyrically with an Epilogue, 'In a churchyard'. The excellent 'bibliography with notes' really consists of abundant notes on the text with bibliographical information; unfortunately the notes are numbered freshly in each chapter. A good though far too short 'glossary of technical terms' is followed by a county index—a useful addition to any such book—and one of places outside Britain, these two needing subsequent reference to the main index. The 'general index' proves to be, in fact, one of names only, and one looks in vain for subjects, so that these are virtually impossible to find without wading at least through the contents list. Much of the book's immense reference value is therefore impaired.

H.V.M.R.

The Art of Interior Design and Decoration, by John M. Holmes. 9 in. (xii) + 195 pp. incl. pls. text illus. Longmans, Green. 1951. 16s.

From 'Modernismus' and 'The Architecture of Humanism' to the Royal Festival Hall is a far cry, and there is no longer any need to explain or vindicate modern work. Mr. Holmes, however, has the contemporary scene much at heart and, defining decoration as design and design as decoration, he traces the history of formal and informal decoration and draws an analogy between architecture, painting and sculpture, the better to consider whether modern design has yet reached a 'ripeness' or a true synthesis between beauty and use.

Formal Renaissance or informal contemporary, the architect's means of expression are unchanged: composition, scale, pattern, texture and colour are his vocabulary (to which the author adds the undemonstrable ingredient 'magic') and these elements, together with a valuable chapter on 'Design Scale' are analysed with insight and scholarly clarity.

The architectural student will be a little disconcerted by the many references to decorators and decoration, and will hardly agree that good interior design of today 'refrains' from decorative expression and decorative artifice or that the modern architect seeks to solve the mystery of art in the three words 'fitness for purpose'. This was the functional approach of the 1930's, and

good design of today has very much more of romanticism than austere function. It is more than an expression of physical convenience alone.

In addition to the contemporary types of interiors illustrated, one could wish that there had been a half-dozen of the many distinguished post-war interiors of this country together with those of American and Continental designers. As the book stands, the Horse of Selene steals all the thunder and breathes all the magic.

Mr. Holmes is a teacher, and his book reflects his wide and sympathetic knowledge of students and their design and colour problems. It is a thoughtful and stimulating (and sometimes provocative) review of the principles of his complex subject.

R. VAUGHAN [A]

Landwirtschaftliche Baukunde [Agricultural Buildings], by T[oni] Miller. (Bautechnik Entwurfslehre). 8 in. viii + 139 pp. incl. pls. Oldenburg: Rudolf Müller. 1949. 16s.

Stall-Innenausbau [The Detailing of Interior Equipment of Farm Buildings], by T[oni] Miller. (Landbau series, 1) ob. 8½ in. × 11½ in. 57 pp. + 68 pls. Munich: Hermann Rinn. 1948. £1.

Dorf Seega im Umbau, ein Planungs Beispiel [reconstruction of the village of Seega], by T[oni] Miller. (Deutsche Akademie der Wissenschaften zu Berlin: Schriftenreihe des Institutes für Bauwesen, 1.) 11½ in. x + 112 pp. + folding pls. Berlin: Akademie. 1949. £3 10s.

These three books under the name of Professor Toni Miller are the result of the co-operation of a large number of experts and the hard work of many students and draughtsmen. They were produced in those first grim post-war years at the newly reorganised Technical University for Architecture and the Fine Arts at Weimar, when a genuine spirit of enthusiasm and a great sense of urgency filled students and staff alike. Those were the promising days of the Soviet zone, and it is significant for the way in which this promise remained unfulfilled that two of the books were published in the Western zones, and that Professor Scharoun, who wrote the introduction of the important volume on village planning, is no longer associated with the Academy who promoted this publication.

The first, a comprehensive little text book on agricultural buildings, owes much of its wealth of information to the agricultural consultant Dr. Herre, and to the accumulated information compiled by the KTL (Kuratorium für Technik in der Landwirtschaft) between 1939 and 1945. While the facts and figures need careful checking before they can be applied to English conditions, the general arrangement is so good that one cannot help wishing there was an English textbook of similar scope in existence. The illustrations are few in number, but they are extraordinarily well chosen to illustrate just those points that one wants to verify on the drawing board. They are drawn by students and redrawn by specialised artists, so that they are both legible and technically correct. No one man could have

produced such a book in such circumstances, and the credit belongs to the whole Weimar School, as much as to the author.

The book on the detailing of equipment consists of 68 pages of details drawn to a high standard of draughtsmanship and accuracy, and 55 pages of explanatory notes, arranged in the order of the sheets of drawings. With characteristic German thoroughness, no detail is shirked and no difficulty glossed over. To take an instance, there are nine sheets of different barn and stable doors, and every point, every detail of ironmongery, is shown without leaving anything to the imagination. Since most examples are already well tried, such a set of drawings must be of great value to land

agents or to the men who advise farmers how to build soundly and to keep maintenance down. Moreover the drawings are so well done that one can read them without the German lettering. This is a good book to refer to in a considerable number of instances, although our own literature in respect of fixed equipment is becoming more informative and will make foreign model drawings less indispensable as time goes on.

The book on the replanning of the village of Seega in Thuringia is the result of the assiduous work of a team consisting of an agriculturist, a geologist, a landscape planner, several administrative civil servants, and a group of graphic artists who were so successful in the preparation of drawings

for the other two books. Intended to serve as an example for others to follow and improve upon, it tries to solve a difficulty frequently found in Germany, that of a village and agricultural environment still very much as the 15th century left it. This has to be brought into line with modern requirements in order to be able to survive. The enclosures practised in the 17th and 18th centuries by the English landlords solved these very knotty problems of rural planning for us, at least up to a point. But there are sufficiently startling contradictions and insufficiently startling constructive thought in the domain of rural planning in this country to make any contribution to this topic worth studying.

G. ROSENBERG [4]

Correspondence

'ARCHITECTURAL PRINCIPLES IN THE AGE OF HUMANISM'

Sir,—It is strange to find that such very different interpretations can be put upon the same words. I was so surprised to read the letter from the Smithson's in your last number that I looked up the review in question and confirmed that it was the very same that had persuaded me that I must obtain a copy of the book at all costs.

I cannot for the life of me see that Wittkower needs defending against Butler, or that there is anything insulting about the review, which certainly did not suggest to me that a study of the book would be 'unrewarding'—quite the contrary. On the other hand it is only fair for a reviewer to warn possible readers that a book of this kind is not light reading and that it will demand concentration and perseverance. It is no insult to make it clear that the book is not the type of popular art nonsense that can be read in bed or at the breakfast table.

I would strongly support Mr. Butler's plea that there is a place for a simpler exposition of the main theories in a form that could be more easily absorbed by the ordinary architect, and I hope that Dr. Wittkower will some day find time to produce such a work, which would be of great value to those who are only too ready to attack or defend theories of which they have very little understanding.

Finally, may I dispose of the Smithson's 'unsobly disguised insult' to all architects older than themselves? I can assure them that Wittkower is by no means an exclusive discovery of the younger generation, his work has been known to and appreciated by many older architects for a great many years.

Yours sincerely,

JOHN BRANDON-JONES [4]

Sir,—Allow me to congratulate you on your review of Dr. Wittkower's book, *Architectural Principles in the Age of Humanism*. Dr. Wittkower it seems to me has only added to the general confusion,

and this is perhaps why the criticisms contained in your review have made 'advanced' designers, who are Romantics at heart and who, like all Romantics, love confusion, so angry.

Yours faithfully,

BERTRAM HUME [F]

THE WREN DRAWINGS

Sir,—The article on Drawings for the City Churches in the February issue of the JOURNAL is very interesting and most instructive. When we compare modern drawings with the extremely simple ones by Wren or by his assistants one cannot help wondering whether our modern drawings are too elaborate.

Wren's drawings are simple statements of the essentials. Our drawings, by comparison, seem to be cluttered up with a mass of information, often redundant and certainly very confusing. This leads us to ask if our present methods are really necessary and whether we waste time in being over-meticulous. Moreover, the present tendency is to spoon-feed the builder to such an extent that he is lost unless every little item and minute detail is depicted and explained.

On a recent visit to Lincoln the librarian showed me Blomfield's contract drawings for the city library there. The one-eighth scale drawings were not even figured, and the $\frac{1}{2}$ in. drawings were like the Wren drawing stated in your article to be by the hand of the Master. But the building is there all right and quite a good one too.

Blomfield and Hare and one or two others of that time may be said to be the last in the Wren tradition. When I was a pupil in the latter's office around 1907 where Thomas Davison did most of the $\frac{1}{2}$ in. work, the drawings done by him were just as simple as Wren's and very like them. In that office the assisting staff consisted of Davison (an Ashpitel prizeman at the then princely salary of £4 4s. a week), G. L. Alexander (a beautiful draughtsman, especially of Gothic, a pupil of G. F. Bodley and late partner of Robert Atkinson, unhappily killed in World War I, salary £2 10s.), myself paying a premium, a tracer and an office boy.

In the three years I was there the

following buildings were built: Hammer-smith Public Library, two Public Libraries at Islington, Fulham Public Library, United Kingdom Provident Institution in the Strand, a whole University—that of North Wales Bangor—several large country houses, and many other minor jobs which I have forgotten. He also entered the competition for the London County Hall and for the Aldwych Improvement Scheme, which he won but which unfortunately was never carried out.

We hardly ever worked overtime, and there was never any feeling of rush in the office. Hare came at 9.30 and wrote his letters in his own hand in sticky ink, which the boy copied in the press. He then sat down to draw. The point about all this is that unless the drawings were very skilfully done to keep them simple the work would never have been done with such a small staff.

A very important point about Wren's work—how far did he carry the drawing part of his art? Have any F.S. drawings of his survived? Is any complete set of his drawings still extant with reference to any one of his single buildings?

It seems as if details were left to his craftsmen. For example, an Order would be specified, leaving it to Mr. Stone to execute the details if in stone, and to Mr. Gibbons if of wood, and a still more important point, if this was so, the form of the details was expressed by men who actually handled the material. It was *actual* form not secondhand form.

Wren's work 'lives' even to this day. May not this be due to lack of draughtsmanship? Not that slack drawing is to be encouraged, but rather the great art of making drawings to show what is essential and that only.

Our buildings undoubtedly lack 'life' or what one would call the human touch of Wren. I suggest that this is because we insist too much on fussy drawing. The letter kills; it is the spirit that gives life, and if we carry drawing beyond a certain necessary point the further it is carried the more lifeless the work becomes.

Yours faithfully,

W. W. SCOTT-MONCRIEFF [F]

Notes and Notices

NOTICES

Sixth General Meeting, Tuesday 1 April 1952 at 6 p.m.

The Sixth General Meeting of the Session 1951-52 will be held on Tuesday 1 April 1952 at 6 p.m. for the following purposes:

To read the Minutes of the Fifth General Meeting held on 4 March 1952.

To present the Royal Gold Medal 1952 to Mr. G. Grey Wornum [F].

(Light refreshments will be provided before the meeting.)

Session 1951-52, Minutes V

At the Fifth General Meeting of the Session, 1951-52, held on Tuesday 4 March 1952 at 6 p.m.

Mr. A. Graham Henderson, A.R.S.A., President, in the Chair.

The meeting was attended by about 370 Members and Guests.

The Minutes of the Fourth General Meeting held on Tuesday 5 February 1952 having been published in the JOURNAL, were taken as read, confirmed and signed as correct.

The President referred to the loss which the nation had sustained as a result of the death of His Majesty King George VI and to the special loss suffered by the Royal Institute, which owed so much to His Majesty as Patron throughout his reign, and the meeting stood in silence for a few minutes as a tribute of respect.

The Hon. Secretary read a copy of the Loyal Address which was to be engrossed on vellum and forwarded for presentation to Her Majesty Queen Elizabeth II.

The following members attending for the first time since their election were formally admitted by the President:—

AS FELLOW

J. R. Tolson.

AS ASSOCIATES

T. J. Austin, A. Avenell, Miss M. A. Ball, I. J. Ballantine, A. J. G. Booth, J. G. Brown, L. J. Bufé, J. A. Burrell, P. A. Curd, J. E. Dennys, D. A. Eaglen, F. W. Faul, D. A. Forder, J. M. Gallagher, I. H. Gibbs, A. Greenwood, R. G. Harris, G. A. Hayes, M. H. Hennings, J. R. Howard, Ronald John, H. M. Kanhere, D. F. Line, F. H. Marsh, A. E. Moody, G. T. Myers, R. D. Norwood, Bruno Nussbaum, C. T. Paine, D. C. Robinson, A. J. Rowlands, Norman Russell, P. A. C. Sanderson, B. D. Smith, I. B. Sprague, F. J. H. Stanford, J. A. Stevens, Robert Stille, Miss P. M. W. Stoughton-Harris, E. J. Voisey, G. P. J. Vroome, John Ward, J. D. Welch, R. F. West, J. R. Wright, C. A. Wright, Mrs. B. P. Wroughton, H. J. Wroughton, R. O. Wynne-Williams, L. M. Young.

AS LICENTIATES

Sidney Boundy, H. D. Hesketh, H. B. Sweatman.

Professor Sir Patrick Abercrombie, M.A., Hon.D.Lit., F.S.A., M.T.P.I. [F], having read a Paper entitled *Twenty Years After*, a discussion ensued and on the motion of Sir George Pepler, C.B., P.P.T.P.I., F.R.I.C.S. [Hon. A], seconded by Mr. A. G. Sheppard Fidler, M.A., B.Arch., A.M.T.P.I. [F], a vote of thanks was passed to Sir Patrick Abercrombie by acclamation and was briefly responded to.

The proceedings closed at 7.40 p.m.

Lecture, Tuesday 22 April 1952 at 6 p.m.

On Tuesday 22 April 1952 at 6 p.m. Mr. E. D. Mills [F], Mr. Patrick Cutbush [A] and Mr. G. Weston, B.Sc., Technical Director, British Standards Institution, will read a paper on *British Standards and the Architect*.

(Light refreshments will be provided before the meeting.)

R.I.B.A. Reception, Friday 23 May 1952

The R.I.B.A. Annual Reception will be held on Friday 23 May 1952 from 8.15 p.m. to midnight. The President and Mrs. Henderson will receive the guests in the Henry Florence Hall from 8.15 p.m. to 9 p.m., and there will be dancing from 9 p.m. until midnight.

Tickets are 15s. each, and applications accompanied by the necessary remittance should be made to the Secretary, R.I.B.A. Payment must be made by crossed cheque, money or postal order. Evening dress will be worn.

British Architects' Conference 1952

All members and Students of the R.I.B.A. and of the Architectural Association and the Allied Societies are cordially invited to attend the Conference to be held in Edinburgh from 25 to 28 June. Full particulars and the application form are enclosed with this issue of the JOURNAL.

It will greatly facilitate the arrangements if all who propose to attend the Conference will complete the application form and return it to the Secretary, R.I.B.A., as early as possible, but in any case not later than 30 May.

Special attention is drawn to the note on page 4 of the programme and to the necessity of reserving hotel accommodation without delay.

Disciplinary Action

Mr. Harry Anderson of Thorndale, Lubbock Road, Chislehurst, Kent, an Associate, was expelled from membership by decree of the Council dated 4 March 1952, made pursuant to the Bye-laws.

COMPETITIONS

Petrol Filling Stations

The sponsors, Messrs. Shell-Mex and B.P. Ltd., invite registered architects to submit designs in competition for petrol filling and service stations. It is not the intention of the sponsors to erect the buildings, but they will give wide publicity to the competition awards.

Assessors: Mr. David du R. Aberdeen, A.M.T.P.I. [F]; Mr. D. A. Birchett [A]; Mr. Frederick Gibberd, M.T.P.I. [F].

Premiums: Section A—Country Service Station—£300, £150; Section B—Suburban or Neighbourhood Service Station—£300, £150; Section C—Main Motorway Service Station—£300, £150.

Two additional prizes of £25 each will be awarded to designs in each section if, in the opinion of the Assessors, they contain features of special interest in design.

Last day for submitting designs: 18 April 1952.

Conditions may be obtained on application to Messrs. Shell-Mex and B.P. Ltd., Publicity Department, Shell-Mex House, Strand, London, W.C.2.

Deposit £1 1s.

Dow Prize Competition

The Illuminating Engineering Society offers a prize which will be awarded to the winners of a competition intended to encourage collaboration between students of illuminating engineering or of those branches of engineering concerned with illumination, and students in other fields in which applied lighting plays an important part. While entries from individuals are not excluded, the competition is primarily intended for students (under the age of 26) working in collaboration. The competition will be set and judged by a panel of Assessors appointed by the Society in co-operation with

the R.I.B.A. and the Institution of Electrical Engineers.

Premium: £75 (and a certificate to each member of the winning team).

Certificates of commendation will be awarded to any other entries of outstanding merit.

Last day for submitting designs: 30 November 1952.

Relevant documents with instructions as to the form which entries should take will be available on 1 April, but forms of application may be obtained now from the Secretary of the Illuminating Engineering Society, 32 Victoria Street, London, S.W.1.

COMPETITION RESULT

City of London (Golden Lane) Housing Scheme

1. Mr. Geoffrey Powell, A.A. Dipl. [A].
 2. Mr. J. M. Scott [A] and Messrs. A. F. Scott and Sons [F/A/A].
 3. Messrs. W. W. Fisk, A.A. Dipl. [F], and S. H. Fisk [L].
 4. Mr. D. M. Gregory-Jones [A].
- Specially mentioned: Messrs. Peatfield [A], Mayo [Student] and Bodgener [A].

ALLIED SOCIETIES

Correction

A note appeared in the January 1952 issue of the JOURNAL stating that the province of the Federation of Malaya Society of Architects was 'the Malay Peninsula with the exception of Singapore and Malaya'. This should read 'the Malaya Peninsula with the exception of Singapore and Penang'.

Berks, Bucks and Oxon Architectural Association: Annual Dinner and Dance

Owing to the illness of Mr. F. A. C. Maunder, R.S., A.M.T.P.I. [F], County Architect of Bucks and President of the Berks, Bucks and Oxon Architectural Association, Mr. H. Desmond Hall [A], Chairman of the Bucks Society of Architects and Vice-President of the Berks, Bucks and Oxon Architectural Association, presided over this annual function of some eighty members and guests, which took place at the Bull Hotel, Gerrards Cross, on Friday 22 February 1952.

The principal guests were: Mr. R. E. Enthoven [F], Vice-President, R.I.B.A., and Mrs. Enthoven; Major F. R. Law, T.D., D.L., J.P., Vice-Chairman of Buckinghamshire Standing Joint Committee; Mr. Roland Bell, M.P. for Buckinghamshire South; Colonel J. Dunnill, D.S.O., Warden of Missenden Abbey; Mr. E. R. Bowyer, J.P., Past-President of the Southern Counties Federation of Building Trades Employers; and Mr. Eric Bird, M.B.E., M.C. [A], Editor of the R.I.B.A. JOURNAL, and Mrs. Bird.

During the evening bouquets were presented to Mrs. Desmond Hall and Mrs. Enthoven, and a competition produced the sum of £10 for the Architects' Benevolent Society.

Manchester Society of Architects: Annual Dinner

The 1952 Annual Dinner of the Manchester Society of Architects was held at the Masonic Temple, Manchester, on Thursday, 31 January.

Mr. W. Cecil Young [F], President, was in the Chair. It was a very well attended and successful function. Among the principal guests were the Lord Mayor, Councillor Wm. Collingson, J.P.; Mr. R. E. Enthoven [F], Vice-President R.I.B.A., and Mrs. Enthoven; Mr. A. E. Jalland, K.C., J.P., Recorder of Preston, Chairman of the Lancashire Quarter Sessions; Mr. E. Jordan, O.B.E., Principal Regional Officer, Ministry of Health; Mr. F. J. M. Ormrod [F], President of the Liverpool Architectural Association; Mr. T. N. Cartwright,

D.S.C. [F], President of the Nottingham, Derby and Lincolnshire Architectural Society; Mr. G. B. Cox [F], President of the Birmingham and Five Counties Architectural Association; and Mr. C. E. Horsfall [F], President of the West Yorkshire Society of Architects.

In proposing the toast of the R.I.B.A., Mr. W. Cecil Young contended that architects know too little about each other's work. 'The Royal Academy is one avenue which is open to all architects, young and old, and insufficiently explored. A much wider field could be covered if each allied society organised an annual display of its capabilities.' Mr. R. E. Enthoven responded on behalf of the R.I.B.A. The toast of 'The City of Manchester' was proposed by Mr. Francis Jones [F], and the Lord Mayor replied.

The toast of 'The Guests' was proposed by Mr. R. M. McNaught [F] and Mr. A. E. Jalland responded.

Hampshire and Isle of Wight Architectural Association: Annual Dinner

The 1952 Annual Dinner of the Hampshire and Isle of Wight Architectural Association was held on Friday 1 February, at Kimbell's Clifton Ballroom, Southsea. The attendance of 240 members and guests was slightly smaller than usual, probably owing to the distance of Portsmouth from the Western Chapter members, but the evening was nevertheless very successful. Mr. A. Graham Henderson, A.R.S.A., President R.I.B.A., and Mrs. Henderson, together with a number of eminent figures in local public life, were among the guests.

The President of the Association, Mr. R. A. Thomas [F], proposed the toast of 'The Local Authorities' and expressed to the Lord Mayor of Portsmouth the Association's appreciation of the manner in which the City Council had enlisted the services of local architects to design and carry out reconstruction work. Both the Lord Mayor of Portsmouth and the Mayor of Gosport responded, and the latter complimented the architects on some of the buildings

he had seen, and said: 'Go ahead with all this work so that in many years to come generations will bless the names of architects.' Mr. A. Graham Henderson, responding to the toast of the R.I.B.A. and the Allied Societies, proposed by Mr. F. L. Freeman, C.B.E., M.A. (Chief Education Officer, County Borough of Southampton Education Committee), said: 'It is up to all architects, because of lack of quality of materials and labour, to give the finest quality of thought.'

Hampshire and Isle of Wight Architectural Association, Western Chapter: Annual Dinner and Dance

The Annual Dinner and Dance of the Western Chapter of the Hampshire and Isle of Wight Architectural Association was held at the Grand Hotel, Bournemouth, on Friday 22 February. Mr. Gordon Sutcliffe [A], Chairman of the Chapter, presided and proposed the toast of 'Our Guests and Ladies'. The toast was replied to by the Mayor of Bournemouth, Councillor F. J. McInnes, J.P., Mr. C. D. Spragg, C.B.E., Secretary, R.I.B.A., and Mrs. F. E. Courtney. 234 guests were present and £14 10s. 6d. was raised for the A.B.S.

South Wales Institute of Architects: Annual Dinner and Dance

The South Wales Institute of Architects held their 1952 Annual Dinner and Dance at the Royal Hotel, Cardiff, on 24 January. The Welsh School of Architecture Students combined with the Institute in the dance.

The Chair was taken by Mr. John W. Bishop [A], and the toast of the R.I.B.A. and the South Wales Institute of Architects was proposed in an interesting speech by Mr. R. E. Presswood, B.Sc., M.Ed., Director of Education, Cardiff. It was responded to by Mr. R. E. Enthoven [F], Vice-President of the Royal Institute, who with Mrs. Enthoven, was among the guests, and by Mr. John Bishop, the President of the South Wales Institute of Architects. The toast of 'The Ports and Industries of South Wales' was proposed by Mr. E. Julian Poda,

Managing Director of the Steel Company of Wales, who drew attention to the functions of an architect in relation to industry. The response was by Alderman Robert Bevan, J.P., Lord Mayor of Cardiff. The toast of 'The Guests' was proposed by Mr. L. R. Gower [F], Vice-President of the South Wales Institute of Architects, and was responded to by Dr. Dilwyn John, T.D., D.Sc., Director of the National Museum of Wales.

GENERAL NOTES

Society of Chemical Industry: Road and Building Materials Group. Conference on application of research

A whole day conference on the application of the research reviewed at the Building Research Congress 1951 is being organised by the above Group of the Society of Chemical Industry with particular reference to papers presented to Division 2 of the Congress. The conference will take place on 17 April 1952.

The papers proposed for discussion at this conference are:—

1. General trends in the applications of research in building materials.
2. Influence on practice of the performance of burnt clay products in structures.
3. The extent to which concrete quality control is being applied and the results thereof.
4. The use of lightweight concretes.
5. Modern improvements in stone housing.
6. The use of alternative varieties of timber and the durability of flooring.

The conference is to be held at the Institution of Structural Engineers, 11 Upper Belgrave Street, London, S.W.1, in two sessions: 10 a.m. to 12-30 p.m. and 2 p.m. to 5 p.m. Those wishing to take part are invited to advise the General Secretary to the Society of Chemical Industry, 56 Victoria Street, London, S.W.1.

It is anticipated that copies of original papers and of the discussions which took place will be available shortly for those who were not members of the Congress and desire to attend this conference.

Notes from the Minutes of the Council

MEETING HELD 5 FEBRUARY 1952

Appointments

(A) **R.I.B.A. Representatives on the Architects' Registration Council of the United Kingdom for the Year 1952-53:** The Institute is entitled to 22 representatives, and the following were appointed: Harold Anderson [F], J. T. Castle [A], L. A. Chackett [F], Anthony Chitty [F], H. Conolly [F], Kenneth M. B. Cross [F], A. G. Sheppard Fidler [F], R. O. Foster [F], P. G. Freeman [F], P. K. Hanton [F], J. E. K. Harrison [F], Cecil Kennard [F], Howard V. Lobb [F], E. D. Lyons [A], E. D. Jefferiss Mathews [F], S. W. Milburn [F], T. E. North [F], Denis Poulton [F], A. L. Roberts [F], W. A. Rutter [F], H. G. C. Spencely [F], R. H. Uren [A].

(B) **R.I.B.A. Representatives on Admission Committee, A.R.C.U.K. for the Year 1952-53:** The following four representatives were appointed: L. A. Chackett [F], C. J. Epril [F], Denis Poulton [F], George Whitby [A].

(C) **Federation of Malaya Architects' Registration Board: R.I.B.A. Representative:** Mr. A. O. Colman, M.B.E. [L], President of the Federation of Malaya Society of Architects.

Royal Architectural Institute of Canada: Annual Assembly 1952: The Council accepted with pleasure the invitation of the Royal Architectural Institute of Canada to the President

and Secretary of the R.I.B.A. to visit Canada, and in particular to attend the Annual Assembly of the R.A.I.C. which will be held in Vancouver at the end of April and beginning of May. After leaving Vancouver the President, who will be accompanied by Mrs. Henderson, together with the Secretary, will visit the headquarters of the American Institute of Architects at Washington on the way back to the United Kingdom.

New Year Honours: The congratulations of the Council were conveyed to Alderman Sir Bertram Wilson [L] on the conferment of Knighthood by His Majesty.

Sir Patrick Abercrombie [F]: The cordial congratulations of the Council were conveyed to Sir Patrick Abercrombie [F] upon the conferment of the Honorary Degree of D.Lit. by the University of London.

R.I.B.A. Architecture Bronze Medal: The Manchester Society of Architects: The Council confirmed the award of the Jury of the Manchester Society of Architects in favour of the Droylesden Secondary Modern School, designed by Mr. G. Noel Hill [F], County Architect for Lancashire.

Boundaries between Allied Societies: the Sheffield, South Yorkshire and District Society of Architects and Surveyors and the Nottingham,

Derby and Lincoln Architectural Society: The Council confirmed the award of the arbitrators, agreed by the two Societies, by which the whole of Lincolnshire becomes included in the area of the Nottingham, Derby and Lincoln Architectural Society while the boundary between the two Societies in Nottinghamshire and Derbyshire remains unchanged, apart from minor adjustments so as to conform to existing Parliamentary and administrative boundaries.

Revision of Rules: the Northamptonshire, Bedfordshire and Huntingdonshire Association of Architects: The Council gave approval to minor revisions to the rules of the Northamptonshire, Bedfordshire and Huntingdonshire Association of Architects.

The Assistant Secretaryship (Public Relations): The Council approved the appointment of Miss M. W. Bromley as Assistant Secretary in succession to Mr. R. W. M. Orme.

Membership: The following members were elected: as Associates, 28.

Students: 341 Probationers were elected as Students.

Applications for Election: Applications for election were approved as follows: *Election 1 April 1952:* as Fellows, 5; as Associates, 37; as Licentiates, 10.

Applications for Reinstatement: The following applications were approved: as Associate: James Robertson; as Licentiate: Donald John Cameron.

Resignations: The following resignations were accepted with regret: Frank Dowdeswell [F], Travers Pickmere [A], Arthur Philip Stoner [A], Reginald James Evans [L].

Applications for Transfer to Retired Members' Class under Bye-law 15: The following applications were approved: as Retired Fellows: William Naseby Adams, Mervyn Campbell-Jones, Henry Norman Edwards, William Goodchild, William Thomas Higgins, William H. Scott, Frederick Candell Wilson, John Wittet; as Retired Associates: David Wickham Ayre, Charles Kydd Blyth, Alfred Ernest Mayhew; as Retired Licentiates: Charles Frederick Carter, Arthur George Cross, Arthur Henry Hooper, Colin Kingsley Jupp, Lomax Raymond Brownlow Palmer, Percy Walter Reed, William Fred Sargisson.

Obituaries

Benjamin Haylor [L] died on 30 July 1950, aged 89.

After being articled to Mr. Charles Bell, Old Broad Street, London, 1878-81, Mr. Haylor practised in Auckland, New Zealand, from 1882 to 1885. Returning to England, he became Deputy Engineer to Willesden Urban District Council, which post he held until 1926. He became a Licentiate of the R.I.B.A. in 1911.

John Stanley Towse [F] died on 26 August 1951 at the age of 76.

Mr. Towse was articled, in 1894, to Mr. Leonard Stokes, Westminster, for three years. He afterwards remained with Mr. Stokes for a

further one and a half years as his assistant, and subsequently entered into practice on his own account. He practised at various times at Lincoln's Inn, Newcomen Street (London Bridge), and Buckingham Street (Adelphi). He became an Associate in 1902 and a Fellow of the Institute in 1919.

Mr. Towse specialised in charitable institutions and buildings. He was responsible for some housing for the aged for the East Sussex County Council, Marshall's Charity, Hopton's Charity, for buildings for Messrs. Barclay Perkins and Co. (brewers) and for Messrs. Ingram Perkins and Co. (timber merchants) and for many country residences in Sussex.

His partner, Mr. Edward Light [A] is carrying on the practice at 19 Buckingham Street, W.C.2.

Membership Lists

ELECTION: 4 MARCH 1952

The following candidates for membership were elected on 4 March 1952.

AS HON. ASSOCIATE (1)

Hetherington: Sir Hector (James Wright), K.B.E., D.L., LL.D., Litt.D., Glasgow.

AS FELLOW (1)

Ashwell: Harold James, A.A. Dipl. [A 1931], Jamaica, B.W.I.

AS ASSOCIATES (25)

Benson: Patricia Ann (Mrs.), D.A. (Edin.).
Bigwood: Thomas, A.A. Dipl.

Bullock: Wilfred Albert, Dip.Arch. (Cardiff), Cardiff.

Burden: Peter John [Final], Canterbury.

Cheyne: Donald St. Clair, Dip.Arch. (The Polytechnic).

Chitty: Dennis Walter, Crawley, Sussex.

Duffy: Patrick Desmond.

Farquharson: Gordon McQuattie, D.A. (Dundee), Blairgowrie.

Forbes: Peter Gordon, D.A. (Edin.), Dunfermline.

Fox: Jack Rothbury, Wolverhampton.

Gammon: John Roy, Dip.Arch. (Cardiff), Bridgend.

Greig: William Alexander, Dip.Arch. (Abdn.), New Deer, Aberdeenshire.

Guest: Patrick, D.A. (Edin.), Warminster.

Ham: Arthur John Laurence, Taunton.

Hayler: Martin Edward, Hove, Sussex.

King: James Leslie, Tempe, N.S.W., Australia.

Knowles: George Edward, Birkenhead.

Lambeth: Dennis Frederick, Burford.

Murrell: Harry Charles, Torquay.

Neilson: John Sydney Medcalf, Dipl.Arch. (Northern Polytechnic), Waltham Cross.

Nutt: David Eric, Dipl.Arch. (Oxford), Oxford.

Prakash: Aditya, Glasgow.

Tait: Alastair Plaxton, D.A. (Edin.), Hertford.

Watson: George, D.A. (Glas.), Lanark.

Watt: Alexander Newlands, Dip.Arch. (Abdn.), Aberdeen.

ELECTION: 6 MAY 1952

An election of candidates for membership will take place on 6 May 1952. The names and addresses of the candidates with the names of their proposers, found by the Council to be eligible and qualified in accordance with the Charter and Bye-laws, are herewith published for the information of members. Notice of any objection or any other communication respecting them must be sent to the Secretary, R.I.B.A., not later than Monday 31 March 1952.

The names following the applicant's address are those of his proposers.

AS FELLOWS (6)

Wingate: Michael Melvill Fenton [A 1932], 231 Strand, Temple Bar, W.C.2: 'Kilmorie', Greendene, East Horsley, nr. Leatherhead, Surrey. G. H. Jenkins, G. T. Mullins, E. D. J. Mathews.

and the following Licentiates who have passed the qualifying examination:

Billam: John, 522 Falmer Road, Woodingdean, Brighton, 7. K. E. Black, J. L. Denman, H. E. Foreman.

Percy: Stanley Frank, U.D.C. Office, Bitton House, Teignmouth, S. Devon; 8 Powderham Terrace, Teignmouth. H. Paul, C. W. Roberts, W. N. Couldrey.

Skelcher: Philip, Lloyds Bank Chambers, 17 Poplar Road, Solihull, Birmingham; 37 Hampton Lane, Solihull. D. A. Goldfinch, J. H. Jones, H. W. Weedon.

Swaine: Anthony Wells, 20a High Street, Canterbury; Cornubia, Old Dover Road, Canterbury. H. C. Ashenden, H. Anderson, C. J. F. Martindale.

Swann: John Henry, Architectural Section; City Hall, Belfast, N. Ireland; 27 Queensbury Park, Rosetta, Belfast. Frank McArdle, A. F. Lucy, R. H. Gibson.

AS ASSOCIATES (80)

The name of a school, or schools, after a candidate's name indicates the passing of a recognised course.

Aylwin: Jill Margaret Maxwell (Miss) [Final], 194 Queens Park Road, Brighton, 7, Sussex. G. M. Aylwin, L. M. Gotch, K. E. Black.

Bannerman: Alexander Henry, Dip.Arch. (Abdn.) (Aberdeen Sch. of Arch.: Robert Gordon's Tech. Coll.), 35 Elmbank Terrace, Aberdeen. E. F. Davies, A. G. R. Mackenzie, J. G. Marr.

Barnes: Keith [Special Final], The Lodge, 14 Sussex Place, Slough, Bucks. C. W. Box, H. J. Stribling, W. D. Hartley.

Bassi: Eric Norman [Special Final], 4 Aragon Road, Morden Park, Morden, Surrey. Applying for nomination by the Council under Bye-law 3 (d).

Bates: Tatnai [Final], 15 Baguley Street, Droydsden, nr. Manchester. Edgar Sutcliffe, A. Douglas Jones, L. C. Howitt.

Beilby: Leslie George [L] [Special Final], 16 St. Giles Avenue, Ickenham, Middlesex. Applying for nomination by the Council under Bye-law 3 (d).

Belfer: Sidney Lionel [Special Final], 240 Westminster Bridge Road, S.E.1. Morris Joseph, D. L. Solomon, M. N. Castello.

Binnington: Roy [Final], 363 Kingston Road, Willerby, Hull, Yorks. G. D. Harbron, Allanson Hick, Edgar Farrar.

Broome: John Harold [Final], 19 Hertford Street, Park Lane, W.1. A. C. Tripe, P. W. Adams, H. B. Challen.

Brown: David, Dip.Arch. (Nottm.) (Nottm. Sch. of Arch.), 12a Farquhar Road, Upper Norwood, S.E.19. T. G. Scott, A. E. Miller, E. W. B. Scott.

Chandler: Arthur Stanley [Final], 13 Valley Side Road, Hastings, Sussex. Edgar Bunce, C. F. Callow, Stanley Ripley.

Chapman: Francis Albert [Special Final], 5 West End Grove, Farnham, Surrey. Leonard Pickford, Eric Lyons, H. A. Bull.

Clark: Archibald Sinclair (Edinburgh Coll. of Art: Sch. of Arch.), 10 Dryden Place, Newington, Edinburgh. J. R. McKay, Leslie Grahame-Thomson, Basil Spence.

Clayton: Maurice Julian [Final], 8 Buckmans Road, Crawley, Sussex. A. G. S. Fidler, Anthony Minoprio, Sir Thomas Bennett.

Craymer: Peter Patrick [Final], 'Belmer', Westella Way, Kirkella, Hull, E. Yorks. J. Konrad, G. D. Harbron, Edgar Farrar.

de Kretser: Ronald George Kenneth [Final], Ladbroke Hotel, 29 Ladbroke Gardens, W.11. C. W. Box, F. G. Goodin, B. George.

De Pierro: Enrico Diaz (Arch. Assoc. (London): Sch. of Arch.), 12 Bedford Place, W.C.1. Henry Elder, R. F. Jordan, H. G. Goddard.

Dunsky: Norman James Storey [Special Final], 326 Dereham Road, Norwich, Norfolk. L. G. Hannaford, C. J. Tomkins, E. W. B. Scott.

East: Barrymore Warwick [Final], 230 Wanstead Park Road, Ilford, Essex. Frank Risdon, Prof. H. O. Corfiato, T. E. North.

Elliott: Alan James, D.A. (Edin.) (Edinburgh Coll. of Art: Sch. of Arch.), 12 Eva Place, Edinburgh, 9. Basil Spence, Leslie Grahame-Thomson, J. R. McKay.

Gilchrist: Samuel Paterson, Dipl.Arch. (Northern Polytechnic) (Northern Poly. (London): Dept. of Arch.), 20 Rosedene Avenue, Streatham, S.W.16. T. E. Scott, H. Bramhill, S. F. Burley.

Green: Geoffrey [Final], High Street, Dorchester-on-Thames, Oxfordshire. J. R. Tolson, E. A. L. Martyn, David Beecher.

Hale: Kenneth [Final], 54 Exeter Street, Cottingham, E. Yorks. J. Konrad, G. D. Harbron, Edgar Farrar.

Halford: John Ernest Gordon [Special Final], 26 Upper Avenue, Eastbourne, Sussex. K. E. Black, F. C. Benz, C. H. Murray.

Hart: George Donald [Special Final], 91 Cole Valley Road, Hall Green, Birmingham, 28. Applying for nomination by the Council under Bye-law 3 (d).

Holgate: Kenneth Harold [Final], 7 Warren Road, Banstead, Surrey. Applying for nomination by the Council under Bye-law 3 (d).

Hollis: Richard Garth [Special Final], 94 Crystal Palace Park Road, S.E.26. J. K. Hicks, C. W. Box, W. B. Sinclair.

Hynes: Annette (Mrs.) (Arch. Assoc. (London): Sch. of Arch.), 33 Holland Villas Road, Kensington, W.14. Henry Elder, H. G. Goddard, Arthur Korn.

Jefferies: Reginald [Final], 14 Holme Road, West Bridgford, Nottingham. T. N. Cartwright, J. W. M. Dudding, C. F. W. Haseldine.

Jeffrey: Robert [Special Final], 11 Bruce Street, St. Andrews, Fife. Applying for nomination by the Council under Bye-law 3 (d).

Johnston: Richard Downing [Special Final], 500 Oldpark Road, Belfast, N. Ireland. T. R. Eagar, R. S. Wilshe, P. B. Gregory.

Johnston: Robert Stewart, D.A. (Edin.) (Edinburgh Coll. of Art: Sch. of Arch.), 80 Stenhouse Avenue, Edinburgh, 11. W. I. Thomson, J. R. McKay, Leslie Grahame-Thomson.

Lacey: Denis (Arch. Assoc. (London): Sch. of Arch.), 1a Lawn Road Flats, Hampstead, N.W.3. R. F. Jordan, Henry Elder, Richard Sheppard.

Lawrence: Lionel John Michael (Arch. Assoc. (London): Sch. of Arch.), 131 Constance Crescent, Hayes, Kent. Henry Elder, Arthur Korn, H. G. Goddard.

Liff: Vivian Alexander (Northern Poly. (London): Dept. of Arch.), 393 Russell Court, Woburn Place, W.C.1. T. E. Scott, J. F. Howes, F. L. Jackman.

Lord: Peter John (Arch. Assoc. (London): Sch. of Arch.), 21 Longcroft Green, Welwyn Garden City, Herts. Henry Elder, Arthur Korn, H. G. Goddard.

Lund: Peter Pearson, Dip.Arch. (Manchester) (Victoria Univ., Manchester: Sch. of Arch.), 'Brunton House,' Scotforth Road, Lancaster. Prof. R. A. Cordingley, C. E. Pearson, Thomas Duffy.

Macdonald: Eric Allison, D.A. (Dundee) (Dundee Coll. of Art: Sch. of Arch.), 4 Glebe Crescent, Alth, Perthshire. John Needham, T. H. Thoms, W. H. Kininmonth.

MacDonald: James (Arch. Assoc. (London): Sch. of Arch.), 75 Huron Road, S.W.17. Henry Elder, Arthur Korn, H. G. Goddard.

Maggs: Robert Percy [Special Final], 116 Bromley Road, Beckenham, Kent. J. H. Somers, A. K. Dodds, R. T. Beck.

Mathews: Jean Patricia (Miss), Dip.Arch. (The Polytechnic) (The Poly., Regent Street, London: Sch. of Arch.), 15a Cambridge Park, Twickenham, Middlesex. J. S. Walden, H. A. Welch, F. J. Lander.

Martin: Wilfred [Special Final], 4 Clarence Parade, Southsea, Hampshire. Frank Mellor, C. W. Box, J. V. Quarmby.

Maynard: Darell Stuart [Special Final], c/o Messrs. Lloyds Bank Ltd., Cox's and King's Branch, 6 Pall Mall, S.W.1. H. M. Lidbetter, R. K. Pullen, Hubert Lidbetter.

Mealing: Dennis George [Special Final], 87 Burnt Oak Lane, Sidcup, Kent. F. F. Doyle, Prof. Basil Ward, L. A. D. Shiner.

Middleton: Alan James (Arch. Assoc. (London): Sch. of Arch.), 26, Osmond Gardens, Wall-

ington, Surrey. Henry Elder, Arthur Korn, H. G. Goddard.

Miller: Peter Francis Nigel [Final], 25 Richmond Hill, Richmond, Surrey. Rolf Hellberg, H. Anderson, J. L. S. Dahl.

Morgan: William Godfrey [Special Final], 41 Hill Terrace, South Street, Taunton, Somerset. R. O. Harris, C. G. Toy, R. M. Hewlett.

Morris: Alan West [Final], 'Kerry', Woodford Road, Poynton, Cheshire. A. Douglas Jones, R. A. Fitton, Henry Elder.

Moyes: Andrew [Special Final], 7 Inglis Crescent, Kinghorn, Fife. William Williamson, Frank Wood, W. A. Ross.

Myers: Leslie Barnett [Special Final], 28 Druids Cross Gardens, Calderstones, Liverpool, 18. H. A. Thomas and the President and Hon. Secretary of the Liverpool Architectural Society under Bye-law 3 (a).

Padbury: John Neil [Final], 5 Heathcote Road, North End, Portsmouth. A. C. Townsend, Major G. J. Jolly, R. A. Thomas.

Philpott: William Charles [Special Final], 64 Strouden Road, Bournemouth, Hants. L. S. Youngman, A. E. Geens, A. C. Townsend.

Pirie: Ian Hutcheon [Final], 60 Union Street, Montrose, Angus. John Needham and the President and Secretary of the Dundee Institute of Architects under Bye-law 3 (a).

Plenderleath: Ian Jeffrey, D.A. (Dundee) (Dundee Coll. of Art: Sch. of Arch.), 4 Home Terrace, Broughty-Ferry, Angus. John Needham, T. H. Thoms, W. H. Kininmonth.

Power: Alfred David [Final], 77 Town Row, West Derby, Liverpool, 12. M. G. Gilling, H. A. Dod, Spencer Silcock.

Purslow: George Ellis [Special Final], 82 King Street, Cherry Orchard, Shrewsbury. A. G. Chant, G. N. Hill, A. N. Harris.

Ouin: Diana Patrice (Miss), Dip.Arch. (The Polytechnic) (The Poly., Regent Street, London: Sch. of Arch.), 75 Bridge Lane, Golders Green, N.W.11. J. S. Walkden, David Jenkin, A. G. Porri.

Ramsay: John Michael [Final], 'Santa Monica', Cockfosters Road, Hadley Wood, Barnet, Herts. E. W. Palmer, C. W. Box, J. S. Walkden.

Reichwald: George William [Special Final], c/o National Provincial Bank, 94 Moorgate, E.C.2. Trenwith Wills, D. W. Aldred, C. W. Box.

Rice: George Henry (Arch. Assoc. (London): Sch. of Arch.), 42 Palace View, Bromley, Kent. Henry Elder, Arthur Korn, H. G. Goddard.

Richards: Norman Henry [Special Final], 130 Ladywell Road, S.E.13. Anthony Tripe, and applying for nomination by the Council under Bye-law 3 (d).

Robinson: John Vincent, Dip.Arch. (The Polytechnic) (The Poly., Regent Street, London: Sch. of Arch.), 20 Colham Avenue, Yiewsley, Middlesex. J. S. Walkden, David Jenkin, J. J. Crowe.

Sanger: Nelson John [Special Final], The Copse, Great Greenhills, Chorleywood, Herts. R. S. Nickson, J. S. Walkden, David Jenkin.

Sansome: Lionel Edgar [Special Final], 43 Northumberland Crescent, Thorpe Bay, Essex. J. M. Scott, P. G. Hayward, Neil Martin-Kaye.

Scarborough: Barry, Dip.Arch. (Nottm.) (Nottingham Sch. of Arch.), 76 Bagshaw Street, Pleasley, Mansfield, Notts. A. E. Eberlin, F. W. Tempest, and applying for nomination by the Council under Bye-law 3 (d).

Scott: Walter (Edinburgh Coll. of Art: Sch. of Arch.), 101 Market Street, Musselburgh,

Midlothian. John Holt, W. I. Thomson, T. W. Marwick.

Shadforth: Gordon [Special Final], c/o County Architects' Dept., Essex County Council, Chelmsford, Essex. Harold Conolly, Denis Senior, J. H. Haughan.

Sharp: John Robert Challen, Dipl.Arch. (Oxford) (Sch. of Tech. Art and Commerce, Oxford: Sch. of Arch.), The Barn, Lower Swell, Stow-on-the-Wold, Glos. Guy Pemberton, Thomas Rayson, T. L. Dale.

Simmons: Roger Gunter [Special Final], 51 High Street, Esher, Surrey. Applying for nomination by the Council under Bye-law 3 (d).

Simpson: Ronald Thomas, B.Arch. (Dunelm) (King's Coll. (Univ. of Durham): Newcastle-upon-Tyne Sch. of Arch.), 19 Windy Nook Road, Felling, Co. Durham. Prof. W. B. Edwards, Prof. J. S. Allen, J. H. Napper.

Strange: Brian Herbert [Special Final], 36 Brighton Road, Horsham, Sussex. G. H. N. Inman, E. M. Rice, Elie Mayorcas.

Sturton: Walter Laurence, A.R.I.C.S., Dip.T.P. (Lond.), A.M.T.P.I. [L] [Special Final], 14 Birch Grove, Acton, W.3. R. W. Lone, Prof. William Holford, Arthur Korn.

Thresher: Ronald Norman [Special Final], 'Pinecrest', St. George's Avenue, Queen's Park, Bournemouth, Hants. R. A. Phillips, A. E. Geens, Philip Hardy.

Trevor: Victor Robert, A.R.I.C.S. [Special Final], 56 Haynes Road, Worthing, Sussex. K. E. Black, B. F. Pennells, Sydney Tatchell.

Turnbull: James Alexander [Final], 248 Binley Road, Coventry, Warwickshire. A. H. Gardner, Rolf Hellberg, W. S. Hattrell.

Ward: Cecil George Frederick, M.A. (Cantab) [Special Final], 9 Museum Street, York. James Macgregor, Kenneth Ward, Colin Rowntree.

Ware: John Charles [Final], 155 Moy Road, Roath Park, Cardiff. Lewis John, C. F. Jones, D. G. Walton.

Wallis: Albert Edward [Special Final], 'Clarewood', 22 Freehold Road, Ipswich, Suffolk. E. J. Symcox, Maurice Chesterton, M. J. Slater.

Wilson: John Hay Andrew [Special Final], 213 Falldon Way, Hampstead Garden Suburb, N.W.11. J. Holman, W. J. Durnford, A. R. Borrett.

Zentner: Charlotte (Miss) [Special Final], 66 Shoot-up Hill, N.W.2. Eugene Rosenberg, Frank Rutter, F. R. S. Yorke.

ELECTION: 17 JUNE 1952

An election of candidates for membership will take place on 17 June 1952. The names and addresses of the overseas candidates, with the names of their proposers, are herewith published for the information of members. Notice of any objection or any other communication respecting them must be sent to the Secretary, R.I.B.A., not later than Sat. 14 June 1952.

AS ASSOCIATES (5)

Brown: Desmond O'Brian (Passed a qualifying Exam. approved by the I.S.A.A.), 20 Waterfall Avenue, Craighall, Johannesburg, S. Africa. Prof. L. W. T. White, O. Pryce Lewis, and applying for nomination by the Council under Bye-law 3 (d).

Endres: Anton Otto (Passed a qualifying Exam. approved by the I.S.A.A.), 172 Henrietta Road, Norwood, Johannesburg, S. Africa. Applying for nomination by the Council under Bye-law 3 (d).

Fitzgibbon: Christopher Anthony, [Special Final], P.O. Box 98, Lusaka, Northern Rhodesia.

A. L. Spencer and applying for nomination by the Council under Bye-law 3 (d).

Gordon: Alec Adolph, B.Arch. (Rand) (Passed a qualifying Exam. approved by the I.S.A.A.), 14 5th Avenue, Parktown North, Johannesburg. Applying for nomination by the Council under Bye-law 3 (d).

McLean: David Hugh (Passed a qualifying Exam. approved by the R.A.I.A.), 37 Swanston Street, Melbourne, C.I., Victoria, Australia. S. T. Parkes, J. F. D. Scarborough, P. A. Oakley.

AS LICENTIATES (3)

Harrison: John Lodge, c/o Public Works Department, Bechuanaland Protectorate Government, Post Office, Lobatsi, Bechuanaland. H. W. Barker, Stuart Bentley, D. A. Goldfinch.

Lallemant: Joseph Francois, Messrs. Lallemant and Williams, P.O. Box 105, Kitwe, Northern Rhodesia; Ingwe, Edinburgh Road, Kitwe. W. D'A. Cathcart, L. F. R. Coote, J. R. Hobson.

Wong: Peng Wah, Messrs. Wong and Karmaker, 10 Burmah Road, Singapore; 74 Keng Lee Road, Singapore. H. L. Li, K. S. Ng, W. I. Watson.

Members' Column

This column is reserved for notices of changes of address, partnership and partnerships vacant or wanted, practices for sale or wanted, office accommodation, and personal notices other than of posts wanted as salaried assistants for which the Institute's Employment Register is maintained.

APPOINTMENTS

Dr. Denis Harper, A.M.T.P.I. [F] has taken up the appointment of Chief Architect to the Corby Development Corporation, the address of which is the Stone House, Corby. His personal address is Fineshade Abbey, nr. Corby, Northants.

Mr. Roman Soltynski [A] has been appointed Studio Master in the final year at the School of Architecture, University of Cape Town.

PRACTICES AND PARTNERSHIPS

Mr. J. J. Birkinshaw [L], who was in partnership with the late Mr. Percy Robinson [F] at 51 Great George Street, Leeds, 1, has removed to 24 York Place, Leeds, 1 (Leeds 33744). The practice will continue as heretofore under the style of Percy Robinson and J. J. Birkinshaw.

Mr. F. John Bowering [A] has commenced practice at 5 Vernon Avenue, Palmerston North, New Zealand. He will be pleased to receive trade catalogues relating to products available to New Zealand.

Messrs. Fairtlough and Morris (Mr. A. C. Fairtlough [F] and Mr. D. R. Morris [A]) have opened a branch office at Church House, Godalming, Surrey (Godalming 1828).

Mr. David Goddard, A.A.Dipl. [A], has moved his London office to 120 Chancery Lane, W.C.2 (CHAncery 5966), where he now practises in association with Messrs. Andrew Carden [A] and W. E. Godfrey [A].

Mr. Ruthven O. Hall [A] has entered into partnership with Mr. F. Leslie Hasker. They are practising under the style of Hasker and Hall at 55 Queen Anne Street, Cavendish Square, London, W.1 (WELbeck 5314).

Upon the retirement of Mr. J. P. Hunter [L] his practice at 13 St. James' Row, Sheffield, will be carried on by Mr. Frank Melling [A].

Mr. C. J. Fawcett Martindale [F], of 27 Victoria Road, Deal, has taken into partnership

Miss Ruth M. Oldacres, A.A.Dipl. [A]. The practice will be carried on from the same address under the name of Martindale and Oldacres.

Mr. E. B. Musman [F] announces that he has taken into partnership Mr. C. H. Simpson [A] and Mr. E. N. Cousins [A], and the practice will continue at 12 Upper Berkeley Street, W.1, under the style of E. B. Musman and Partners.

Mr. A. Beaumont Owles [A], practising under the style of Bostock and Partners, announces that as from 1 March he has opened an office at Ide House, 12 Fife Road, Kingston-upon-Thames, where he will be glad to receive trade catalogues etc. No telephone has yet been installed, but the number will be notified later. His main office continues at Central Hall Buildings, Station Approach, Southall, Middlesex (SOUthall 3291).

Mrs. B. Y. Tetlow, A.M.T.P.I. [A], until recently Deputy Area Planning Officer, Staffordshire County Council, has commenced private practice at 36a Bird Street, Lichfield, Staffs, and will be pleased to receive trade catalogues etc.

The partnership of Messrs. Worthington and Protheroe George, of 14 Albion Place, Maidstone, has been dissolved by mutual agreement. Mr. Clifford Worthington [A] will continue in practice at St. Anne's, Boxley Road, Maidstone (Maidstone 51238), where trade catalogues etc., will be welcomed.

CHANGES OF ADDRESS

Mr. William Bradley [F] has transferred his office from 9 Crawford Avenue, Bolton, to 41 Mawdsley Street, Bolton, Lancs.

Mr. Gerard Coalen (A) has removed to Mulberry Green House, Harlow, Essex.

Messrs. Edwards and Webster, A/A.M.T.P.I. [A/A], have moved from 32 Market Place, Chippenham, to 10 St. Mary Street, Chippenham, Wilts (Chippenham 2294/5). Branch office: 1 St. John Street, Devizes (Devizes 52).

Mr. G. R. Gay [A] has moved to The Guildhall and 19 Rawlyn Road, Cambridge.

Messrs. C. E. Hanscomb and Partners [F/A] and their associated practice of W. L. Eves and Partners, have moved their Epsom offices to 6a South Street, Epsom (Epsom 2167).

Mr. Roman Soltynski [A] has removed to 7 Piccadilly Chambers, Waterkant Street, Cape Town, South Africa.

Mr. R. Lyell Thorpe, A.M.T.P.I. [A], has removed his office and residence to 31 The Terrace, London, S.W.13 (PROspect 5198), from which address he will continue his practice.

Mr. A. W. Walls [A] has removed to 192 Perth Road, Ilford, Essex.

Mr. J. D. Watt [A] announces that the new address of the Municipal Department of the Iraq Petroleum Co. Ltd., is 214 Oxford Street, London, W.1.

PRACTICES AND PARTNERSHIPS FOR SALE AND WANTED

Associate, with 23 years' experience, requires partnership or appointment leading thereto with a firm in London or the home counties. Good siting and standard of design are essential. Box 16, c/o Secretary, R.I.B.A.

Old-established architectural and surveying practice for disposal in popular north-west coastal resort. Large building estates have been developed and one partly developed is in hand. Box 17, c/o Secretary, R.I.B.A.

Fellow at present holding important post in municipal office seeks partnership or position leading thereto in north-east England. Well known in five northern counties. Also qualified town planner, A.M.T.P.I. First-class experience and considerable executive and administrative experience. Would also consider south of England if prospects are good. Box 21, c/o Secretary, R.I.B.A.

Junior partnership offered in established architects' practice in East Midlands. Box 22, c/o Secretary, R.I.B.A.

Associate (32), Dipl.T.P.(Lond.), seeks partnership, preferably south or south-west England. Good varied experience in all aspects of private practice. Car owner. Box 25, c/o Secretary, R.I.B.A.

FOR SALE AND WANTED

Member has for sale combined plan press and filing cabinet built to own design, having six drawers to take sheets up to ordnance map size and three separate cupboards over to take correspondence, files, etc. £15. Sketch available. Box 15, c/o Secretary, R.I.B.A.

For Sale. Halden and Co. 4-screw theodolite in mahogany case, all accessories, tripod: perfect. Offers invited. Box 18, c/o Secretary, R.I.B.A.

Wanted. (1) *Designers in Britain*, Vol. 1. Published by Alan Wingate. (2) *Wood Specimens*. Published by The Nema Press Ltd. and edited by P. N. Nairn. (3) *London, the Unique City*. By Rasmussen. Box 19, c/o Secretary, R.I.B.A.

Modern type three-point or quick set level with tripod and staff required. Particulars and price of these to Box 20, c/o Secretary, R.I.B.A.

Three-screw dumpy level No. 7, tripod, 14 ft., staff and 6 survey poles for sale. Box 96, c/o Secretary, R.I.B.A.

ACCOMMODATION

Professional offices, 4 rooms and kitchenette in self-contained suite; use of receptionist and waiting room. 580 sq. ft. £375 inclusive. £350 for genuine fittings, carpets, etc. Lease up to 13 years by negotiation. Upper Berkeley Street, London, W.1. Box 14, c/o Secretary, R.I.B.A.

Available in member's West End offices, 2 partly furnished rooms, accommodation for secretary and share of receptionist/telephonist. Box 24, c/o Secretary, R.I.B.A.

Architects' Indemnity Insurance

The Architect, like other professional men, incurs certain responsibilities in the course of his work. Mistakes occur in even the most carefully conducted practice, and the Architect may find himself liable for substantial damages which he can ill afford to meet.

Professional Indemnity Insurance

is designed to give cover against all claims arising from acts of neglect, omission or error arising out of the conduct of the assured's profession, and arrangements have been made by which the maximum cover may be obtained at reasonable cost.

Particulars from:

The Secretary, A.B.S. Insurance Department, 66, Portland Place, London, W.1. (Tel: LANGham 5721)



n,
se
ne
ne
o-
rd

ns
or
ne
ts
m
st.

nt,
l.

AL